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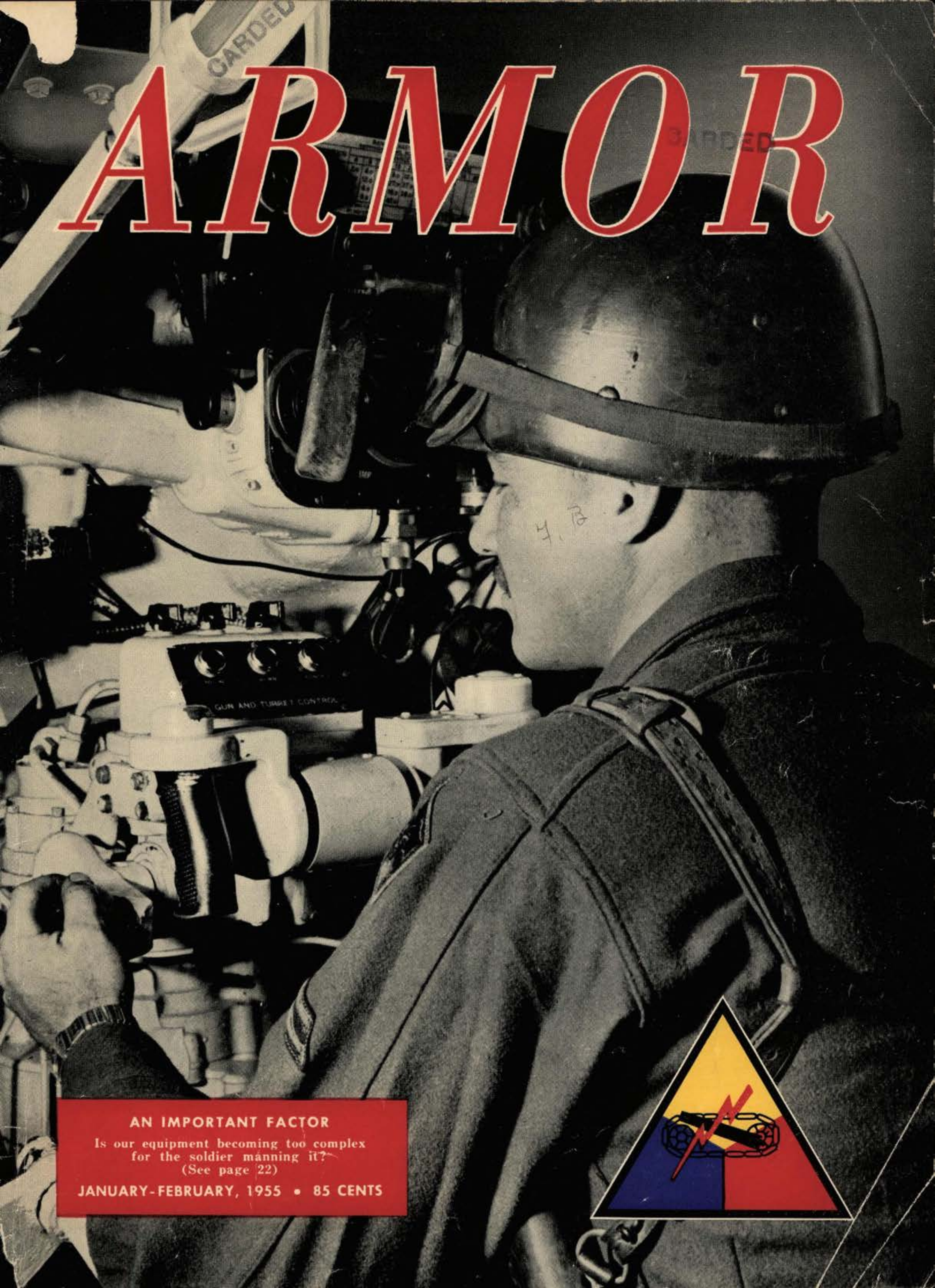

GUN AND TURRET CONTROL

AN IMPORTANT FACTOR

Is our equipment becoming too complex for the soldier manning it?
(See page 22)

JANUARY-FEBRUARY, 1955 • 85 CENTS

THE UNITED STATES ARMY IN WORLD WAR II

LEYTE:

The Return to the Philippines

by M. Hamlin Cannon

The campaign that returned General MacArthur to the Philippines and wiped out the stain of earlier setbacks to American arms receives its due in this, the fifth volume to be published in the Pacific subseries of the Army's World War II history. More than the revenge motif, as the author points out, strategic factors dictated the choice of Leyte as the scene of a major campaign.

Almost two and a half years before the fighting for Leyte began, the Japanese had acquired the valuable resources of the Netherlands Indies. Their conquest of the Philippine Archipelago at the same time had denied to the Allies the bases from which to cut the vital sea lanes from the Indies to the Japanese homeland. Possession of Leyte, situated in the heart of the Philippines, would not only enable the Allies to cut the flow of oil, tin, and rubber to Japan but would give them, the author writes, "an excellent springboard from which to launch subsequent operations against the Japanese in Formosa or in the rest of the Philippines." Instead of being a fight for prestige purposes, therefore, the Leyte campaign was waged for a prize of the highest strategic value, and both sides threw into the struggle greater concentrations of force than had ever before been employed in the Pacific War.

The story of how the Allies won out inevitably focuses on the men who actually came to grips with the enemy, but it is far more than a chronicling of infantry achievement. The author pays full tribute to all the arms and services that joined together to wrest Leyte from the Japanese. And to round out his authoritative account of the campaign, Dr. Cannon, a Navy veteran of World War II, has included also the great contributions of both naval and air forces and the less-publicized Army activities such as movement of supplies and evacuation of the wounded. The American drive to victory, Cannon makes clear, was irresistible because the ground soldier, the sailor, and the airman combined their efforts to make it so.

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Watch for our Exclusive Review in the March-April issue of ARMOR

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ARMOR

The Magazine of Mobile Warfare

Continuation of THE CAVALRY JOURNAL

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LETTERS TO THE EDITOR

More on Equipment Changes

Dear Sir:

A short while back your "Letters to the Editor" section carried an article recommending changes in the equipment of our present Armored Cavalry Units. The author of the letter was a Reconnaissance Platoon Leader in an Armored Infantry Battalion. He apparently based his conclusions on his own experience and upon his observations of the 2d Armored Cavalry Regiment in the field.

The experience of this Company over a period of the last several years indicates that his basic conclusions about the inadequacy of our present equipment are correct. However, it must be pointed out that regardless of these shortcomings in equipment of the Armored Cavalry Regiment, these regiments have done an outstanding job on maneuvers here in Germany. For although the Armored Cavalry Regiment is of limited effectiveness when attacking against heavy resistance, it is capable of extremely rapid movement on short notice. It has proved itself particularly effective in the delaying action and the mobile defense, rolling with the punch where necessary, and striking back when the opportunity presents itself. It is hardly necessary to stress the importance of these capabilities at the present time.

Here, then, are the specific recommendations for the modification or replacement of our equipment which we feel are necessary if our mission is to be accomplished:

1. Each scout vehicle should be equipped with a VRQ8 radio and a .30 cal. machine-gun, which should be mounted to the right front and manned by the car commander. Each platoon could then scout four, instead of two, possible routes or avenues of approach, with no increase in vehicles or personnel. A full-track, lightly armored vehicle, such as the Bren Gun Carrier, would be preferable to the present ¼ ton for both scouting and command, each vehicle to be mounted with radio and machine-gun. It is felt that the cross-country mobility and light armored protection thus afforded would cut our scouting and command casualties appreciably.

2. The present organic tank, the M41, is a particularly fine, all-around vehicle. It has great maneuverability, speed, and offensive capability. Maintenance difficulties are very minor, water in the gas being the usual cause of engine stoppage. However, it has one great failing, that being its relatively short cruising range (50 miles), as compared to the rest of the vehicles in the platoon. To count on more than 50 miles is, at present, a great folly on the part of the company commander. This necessitates stopping in the middle of the normal day's action to refuel. The problem arises in all reconnaissance missions save the limited objective attack and the sustained defense, which are relatively rare.

a. The after-sponson stowage boxes should be removed to provide room for jettisonable auxiliary fuel tanks. These boxes are not necessary, as sufficient other stowage space exists in the forward sponson boxes.

b. Since the principal objection in the past to externally mounted fuel tanks has been the safety factor involved, these tanks should be locked down over compressed springs—the locking spring to be released by electrical solenoid triggered from the tank commander's position. Tanks could then instantly be ejected clear of the vehicle when under fire, or in danger of combustion, without any of the crew members exposing themselves.

3. For the armored infantry squad, the M75 Armored Personnel Carrier has proved adequate. However, it is highly recommended that the M59, on the basis of its performance reports, should replace the M75 for the following reasons:

a. Increased cruising range. This is very critical.

b. Ramp type rear door permits quicker deployment and easier loading for cargo use.

c. Amphibious characteristics aid in achieving rapid support for light river-crossing reconnaissance forces.

4. In the support squad the present half-track mortar carrier has proved to be very cumbersome, of limited mobility compared to the ¼ ton vehicles and the full-track vehicles, and very difficult to keep in operation under all conditions. The mobility of the 81mm mortar has not been increased, due to the extreme difficulty involved in making shifts in deflection which require that the vehicle be moved, as the vehicle has proven very unwieldy for this purpose.

a. It is recommended that the present half-track be scrapped as rapidly as possible. The ideal mortar carrier would be a full-tracked M41 or M59 chassis to provide sufficient mobility and increased carrying capacity for ammunition.

b. Ammunition storage would be at least double the present basic load. Ammunition would be readily available in ready-racks all around the inside of the fighting compartment.

c. Overhead protection could be provided by installing folding aluminum armor on the top, such as now exists on the USMC LVT 3 C Amtrac.

d. This vehicle should have the mortar mounted in the center of the fighting compartment on a turntable provided with a clamp for positioning. Around the edge should be an adjustable slip ring graduated in mils. Such an arrangement would provide immediate 360° traverse without moving the vehicle. Furthermore, only one aiming stake would be necessary once the slip ring is centered.

e. In addition, if a full track mortar carrier were used it would be possible to install a 4.2″ mortar, which has proven itself a really valuable weapon. The full track mortar carrier mounting a 4.2″ mortar provides to the reconnaissance platoon a vehicle capable of going almost anywhere, and also provides immediate support equivalent to artillery in effectiveness.

5. The present series of radios AN/VRQ1, AN/VRQ8, AN/VRQ13, and AN/GRC3&4 are rugged, reasonably dependable, and have proven satisfactory with one exception—the transmit-

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Rates: See bottom of contents page.

ters are under-powered for the long distance work which is unavoidable in reconnaissance missions.

a. A 30 watt (rather than 15 watt) transmitter would provide suffcient power to render our communications satisfactory.

b. Microphone cords should be spring—coiled. This would eliminate much of the present breakage resulting from jerks and the catching of cord loops.

William C. Black
Captain, Armor

Company F, 14th Armored Cavalry Regiment
APO 800-2, N. Y., N. Y.

A New Chapeau!

Dear Sir:

During the five years that I have been an Armor Officer, no satisfactory tanker's helmet has been issued. There have been many rumors of new developments and of a forthcoming plastic helmet.

I am presently commanding an Infantry Regimental Tank Company and I have difficulty convincing some Commanders that we cannot reasonably wear steel helmet or helmet liners inside of tanks. At the same time, the wearing of field caps while crossing rough terrain can be hazardous.

The men of the tank company would sincerely appreciate any information you may have or can obtain on the subject of tank helmets.

Linwood B. Mather
Captain, Armor

Tank Company, 33d Infantry Regiment
Fort Kobbe, Canal Zone

Tank Gas Turbines

Dear Sir:

In the November-December, 1954, issue on page 51 a photograph is shown of the experimental British vehicle consisting of a turretless Conqueror heavy tank chassis with a 1,000 horsepower Parsons gas turbine which was publicly demonstrated in September 1954 and which is described as the world's first gas turbine tracked vehicle. To keep the record straight it is necessary to point out that the French Army also has a gas turbine tracked armored vehicle, powered by two Turboméca turbines giving a total of 540 horsepower, which has been undergoing tests since 1953 and which is, therefore, about as old as the British vehicle.

As a design project the British tank gas turbine may well have antedated the French development for work on it was begun by the marine engineering firm of Parsons, of Newcastle upon Tyne, soon after 1945, whereas the Turbine Motrice, or Turmo, engines used in the French vehicle are only adaptations of Turboméca gas turbine power units not specifically intended for tanks. As a matter of general interest, the very successful small Turboméca gas turbines are being produced under license for a variety of ground and air applications by the Blackburn and General Aircraft, Ltd., in England and in the United States by a subsidiary of the Continental Motors Corporation —makers of the Ordnance-Continental air-cooled military engines—as well as by the Société Tuboméca in France.

However, as design projects both the British and French tank gas turbines were anteceded by a German project for a 1,000 horsepower unit begun in 1944. This project, which was investigated and reported by Allied technical intelligence teams soon after World War II, was the first serious attempt to apply gas turbine power units to armored vehicles. But the German work had not progressed beyond layout and component studies when the end of the war in Europe in 1945 brought it to an end.

Richard M. Ogorkiewicz
London, England.

Division Trains

Dear Sir:

I would like to take this opportunity to extend congratulations and express appreciation on behalf of all personnel of this command for your excellent and instructional article titled *The Armored Division Trains* by Colonel Alfred H. Hopkins which appeared in your July-August 1954 issue.

The 40th Infantry Division (NGUS) was redesignated an Armored Division on 1 July 1954, and as is very apparent, the publication of Colonel Alfred H. Hopkins article was very timely and contained abundant information pertinent to the mission and organization of this command.

The contents of the reference article were reproduced by this Headquarters and distributed to elements of this command to help in orientation of personnel in the Trains Mission and Organization.

Two copies of the reproduced text are forwarded herewith in compliance with instructions pertaining to reprint rights contained in "Letters to the Editor" section.

Anthony Arvizu Rodriguez
Master Sergeant

40th Armored Division Trains
Los Angeles, California

An Achievement!

Dear Sir:

We are very pleased to confirm the fact that *ARMOR* has been selected for analysis at the A. I. G. A. Magazine clinic critique seminar to be held on Wednesday, February 16, 1955.

Will you kindly send copies of recent issues to a member of the panel in order that they may be studied in advance of the February 16th meeting? These should be sent to * * * *.

Kindly advise us as to the representatives who will be present at this meeting.

We sincerely hope and believe that the review of your publication will be of great benefit to you, and we are looking forward to having you and other members of your staff with us on February 16th.

Richard A. Purser

The American Institute of Graphic Arts
13 East 67th Street, New York, N. Y.

• *In the years 1951 and 1952 ARMOR received awards from the American Institute of Graphic Arts. In 1953 we were not so fortunate. However in 1954 the Institute altered its policy. They decided to have various publications submit copies for analysis by a board of experts. We are very proud to be selected for a detailed analysis by an outstanding panel. We likewise feel that a great deal of credit is due our printers—Garrett and Massie—who have worked so faithfully and diligently with us these many years. To them we say—thanks. A detailed report of the analysis will be given in the Reconnoitering column in the March-April issue. ED.*

THE COVER

The man behind the gun and behind the equipment is Corporal Junious Payne, a member of the Tank Company, 22d Infantry Regiment, 4th Infantry Division. The picture, taken on the tank range at Grafenwehr, Germany where his unit visits periodically to maintain its gunnery proficiency, lives up to that part of the old Army maxim: "Give me men that shoot and salute."

CARDED

reconnoitering

Our 178th Anniversary

Last year was the first time that Armor as a branch was recognized by our Chief of Staff by receiving a letter noting that 177 years had elapsed since the birth of the mobile arm. At that time, in this identical spot in the January-February 1954 issue of ARMOR we printed his greetings and we gave a very brief résumé of the history of our branch since December 12, 1776. At the same time we advocated annual get-togethers, public displays and parades commemorating this auspicious occasion by all members of Armor throughout the Army.

Now that another year has passed, General Ridgway has again taken cognizance of this anniversary as noted by the letter in the box on the opposite page.

The year 1954 has seen Armor make great strides forward and a review of some of its highlights will bring last year's *reconnoitering* column up to date. Early in the year we reported that the M75 Armored Personnel Carrier was battle tested and proved itself in action in Korea. The Army Engineers released some information on new bridge developments which will increase the mobility of Armor to overcome certain type obstacles. The annual meeting held in January was the biggest and best held to date. It was reported in the March-April issue along with the release on the M59 Armored Personnel Carrier. More mobile and versatile than its predecessor, the M75, this new improved vehicle gives the Armored Infantryman protection both to and from the battlefield. In late Spring the T43 heavy tank was reported, giving us more firepower on the field of battle. Three new mobile Artillery pieces were included, giving our Armored Artillery more mobility. Also many new faces joined the ranks of Armor from both West Point and various ROTC installations and we welcomed them to the team. During the summer months we were happy to report the reactivation of the 4th Armored Division to a combat outfit. And it was indeed a pleasure to welcome the 40th Armored Division (California National Guard) to our midst. In early Fall we saw the M44 self-propelled 155 howitzer become part of the mobile team and we reported that the Tennessee National Guard would be allotted an Armored Division. (The 30th Armored Division was organized in that State on October 11th.) We closed out the year with the announcement that the 27th Infantry Division (New York National Guard) would soon be converted to Armor. This was confirmed on the 18th of December by authorities of that State. Thus we started 1955 with a total of five National Guard armored divisions and three Regular armored divisions with three more Regular armored divisions being actively engaged in training.

Yes it has been a good year for Armor and as we pack our bags to attend the annual meeting at Fort Knox we wonder what 1955 will bring forth.

We also wonder what various armor outfits did to take notice of their anniversary on the 12th of December and what your plans are for this coming year. We feel that this is a good jumping off place to stimulate interest in Armor and build morale within your units. A vantage point such as this should not be overlooked.

UNITED STATES ARMY
THE CHIEF OF STAFF

TO THE ARMOR OFFICERS AND MEN
OF THE UNITED STATES ARMY

On the occasion of your 178th anniversary, I speak for all your Army comrades in extending to you hearty congratulations and best wishes.

Your anniversary date affords you an occasion to renew and intensify your efforts toward attaining maximum possible combat proficiency in your important role as members of the Army team.

The officers and men of Armor have proudly shared in the traditions of courage, resourcefulness, and faithful devotion to duty which have always distinguished the fighting men of the United States Army. The new challenges that face the Army present new opportunities for accomplishment to each of you, for the vastly increased range and destructiveness of modern weapons have placed emphasis upon the qualities of mobility and firepower throughout our Army.

I am confident that you will continue to maintain your high standards of soldierly conduct and that your achievements will continue to reflect the finest credit upon our Service.

M. B. Ridgway

M. B. RIDGWAY
General, United States Army
Chief of Staff

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The Deputy Chief of Staff for Logistics

by LIEUTENANT GENERAL WILLISTON B. PALMER

ON 8 September 1954, the Army created a Deputy Chief of Staff for Logistics. This officer was assigned two principal functions: to be the advisor to the Chief of Staff on all logistical matters and to direct and control the seven Technical Services. These had been also the functions of the predecessor office, that of Assistant Chief of Staff for Logistics, usually known as G4, but the new Deputy was granted, in specific terms, authority over the missions, organization, procedures, personnel, training, and fiscal and business management of the Technical Services. It was the absence of these specific grants which, more than anything else, frustrated his predecessor, G4.

These changes resulted directly from a report by the Secretary of the Army which was approved by Secretary of Defense Wilson on 17 June 1954. The Secretary's report, in turn, followed a period of intense study and debate upon the report (18 December 1953) of the Advisory Committee on Army Organization (Davies Committee). Both of these reports called strongly for change, but change by evolution; both warned against the danger of disruptive revolutionary changes. And accordingly, we have taken some decisive evolutionary steps.

The United States Army has a long history. Its organization at any moment of *Time* is something evolved in the pressures of all its yesterdays. So let us begin by taking a quick look at the past of our logistical organization, and then try to bring it into focus at this moment of *Time.*

The Years of Chaos

When President Washington's first Secretary of War, General Henry Knox, first organized the War Department in 1789, he did so by establishing four bureaus—the offices of the Adjutant General, the Quartermaster General, the Paymaster General, and the Judge Advocate. As the years rolled on, new bureaus were created: the Chief of Engineers, the Surgeon General, the Chief of Ordnance, and so on.

For over 100 years, the Chiefs of what we now call the Administrative and Technical Services were not really part of the Army and some of them were not even Army officers. What they were, in fact and in law, was heads of bureaus in an Executive Department which numbered the Army among its numerous responsibilities. They reported to the Secre-

LIEUTENANT GENERAL WILLISTON B. PALMER, a 1919 USMA graduate, has a distinguished military record. During World War II he was CG of the VII Corps Artillery from the Normandy invasion to the drive to the Elbe. He was CG of the 2d Armored Division when it returned to Europe, later X Corps Commander in Korea and now the 1st D C/S for Logistics.

This article is based on a recent address by General Palmer, the incumbent Deputy Chief of Staff for Logistics, at the Army War College, Carlisle Barracks, Pennsylvania.

tary of War personally and took orders from nobody else. This departmental bureaucracy was something quite apart from the Army.

The official head of the Army was the senior line general, and he had the title of "Commanding General of the Army" or sometimes "General-in-Chief." He was the most frustrated man in the Army as well as the highest-ranking. He had no authority over the bureau chiefs; and whenever he tried to butt in they told him the Army had nothing to say about it. That may sound absurd and impossible, but is absolutely true.

From the soldier's point of view, this strictly bureaucratic approach to military affairs had a thousand grave defects, but the gravest of them all was this: *the War Department possessed no means whatever to relate its actions to the conduct of war.* There was no agency to collect and evaluate intelligence; to prepare strategic plans guided by that information; to prepare a mobilization plan based on that strategic plan; to compute matériel requirements based on the mobilization plan; to plan an industrial mobilization based on the matériel requirements; or to plan a budgetary program by which the appropriations might be related to the probable strategic needs.

Birth of the General Staff

It was to fill this void that the General Staff was created some 50 years ago (1903), and the Chief of Staff was interposed between the Secretary of War and the bureau chiefs.

The bureau chiefs very naturally resented this interposition of the Chief of Staff. Nothing arouses resistance so certainly as being shoved from the source of power. However, it was not the Technical Services (as we now call them) that made the biggest fuss about it. The Adjutant General of that day defied the Chief of Staff so obstreperously that in 1912 he had to retire to avoid a court-martial; and even after his retirement he got a rider into the Army Appropriation Bill to remove General Wood as Chief of Staff. President Taft vetoed the bill and the Army went unpaid for seven months.

Then in 1916 the Judge Advocate General swung a haymaker at the Chief of Staff, attacking his power in a long legal opinion. That round ended when Secretary Baker overruled the Judge Advocate General in a masterly legal opinion of his own. So as we entered World War I, the General Staff idea was still fighting for life—but not particularly with the Technical Services.

Chief of Engineers

Maj. Gen. S. D. Sturgis, Jr.

Chief of Ordnance

Maj. Gen. E. L. Cummings

The Quartermaster General

Maj. Gen. K. L. Hastings

What interested the Technical Services was *MONEY*. At that time, and for long after, Congress made the appropriations directly to the bureau chiefs—so much money to the Quartermaster General, so much to the Chief of Ordnance, and so on. Then the law would go into details about what the bureau chiefs would do with the money.

The bureau chiefs accepted the need for a General Staff to collect and evaluate intelligence and to prepare plans for possible wars; but they held on to their direct appropriations until after World War II (1950). The change even then was gradual. First, Congress gave the Secretary of Defense a broad authority over the money of all three services. Then Congress created the office of Comptroller for each of the services, and stopped making direct appropriations to the Technical Services; and the Comptroller took over the money.

This was probably the most important change ever made in the administration of the Army with the sole exception of the General Staff Law itself, but don't let me give you the impression that it was a victory for the General Staff. It was a victory for the Defense Comptroller.

How to Manage Logistics?

But we have gotten ahead of our story. We have seen that the vacuum in High Command became intolerable at the turn of the Century, and so the General Staff was born. And even as the old supply bureaus were arraying their strength to hold off this encroaching upstart, they discovered that they themselves were changing almost beyond recognition.

Clearly something of tremendous significance happened to the Army about 50 years ago. It had been getting along (however awkwardly) for over a hundred years, it had come through the terrible strains of the Civil War; and now all this commotion began with the little one-horse Spanish-American War! Why?

What had happened was indeed significant: we had undertaken an overseas war. That was what tore it. The War Department collapsed when we took our first modest step into what has become a whole series of overseas wars; wars which have continually grown like the expanding universe—bigger forces with more complex gear in more theaters on more continents at greater distances with more allies to assist, so that, try as we may to catch them, our problems seem to rush constantly outward beyond our reach. It was the little one-horse Spanish-American War that pulled the trigger. Patterns that had been fairly stable for 100 years have been shifting ever since.

In World War I and on a greatly increased scale in World War II, the stuffy little Departmental bureaus grew into huge industrial organizations, with arsenals, factories, depots, proving grounds, purchasing agencies, schools, laboratories, ports, fleets, and a vast array of technical troops with the field armies.

Since all of these enormous enterprises were intended solely for the support of the combat arms, some agency inevitably *had* to appear with the mission of coordinating their huge efforts with each other and with the missions and plans of the Army. For 50 years, more or less, the Army has been seeking how to conform to the fact of life that these huge logistical enterprises have to be directed and controlled by somebody.

In World War I, after a lot of thrashing around, they finally combined under one strong man the command authority and the General Staff planning over logistics. The solution of 1918 was to organize the Purchase, Storage and Traffic Division, under General Goethals.

In World War II the same thing happened. They found the strong man in General Somervell. He moved from the position of G4 to that of Commanding General, Army Service Forces. The technical services came under his command, and the logistics planning was done by his staff.

Our World War II effort in Europe likewise followed this pattern. General John C. H. Lee was made commander of the Services of Supply in the European Theater at an early date. Time after time, a G4 division was established on the ETOUSA staff. One after another, General Lee swallowed them up and took back the G4 functions to himself. Finally he swallowed up the whole theater headquarters in his combination SOS-ETOUSA headquarters of 1944.

So these rare but very expensive experiments in wartime logistics all seem to yield the same answer. The function of executive authority over logistical operations and the function of principal staff advisor for logistics are always given to one man when the pressure gets heavy enough to squeeze out the theorists.

Chief Signal Officer

Maj. Gen. Geo. I. Back

The Surgeon General

Maj. Gen. G. E. Armstrong

G4 Given Limited Command Powers—1946

In 1946, when the wartime organization shrank down, it was decided to abolish Headquarters, Army Service Forces, and to combine both the staff function and the executive authority in G4 of the General Staff. The word "command" is a good one to avoid unless you mean it in the complete sense. The authority G4 received was to "direct and control" the Technical Services. Under this formula, with the Assistant Chief of the General Staff empowered to "direct and control" the Technical Services, we went through the war emergency which began in June 1950.

This was no trivial test of the logistical organization. At the same time we were supporting the Korean campaigning, we were also undertaking the creation of the Seventh Army in Germany, the creation of the Communications Zone in France, the farflung MDAP programs and the further flung base construction programs. The logistical effort was certainly as great as in World War I. The management combination of G4 and the seven technical services had a pretty fair test. It made mistakes but it was never in the slightest danger of collapse. *It was the first modern war in which we did NOT abandon our logistical organization and create a new one.*

As we emerged from the Korean War, there was good justification for these two conclusions:

1st, that the two functions of general manager of the seven Technical Services and principal staff advisor for logistics should be combined in one man; and

2d, that G4 could handle the two jobs in a war emergency.

Defects in G4's Powers

From the day I returned from Korea to become G4, it was made crystal clear to me that I was completely responsible, both to the Chief of Staff and to the Assistant Secretary of the Army, for the logistic operations of the Army. That was what they meant by "direct and control."

But the 100 per cent responsibility was not matched by corresponding authority. The effect of the so-called "General Staff concept" that had prevailed since 1921 was to give four or five other General Staff agencies authority to intervene in Technical Service affairs. Since there was no one boss with full responsibility *and* authority for integrating and giving pattern to the system of seven Technical Services, they were left to seek their own salvation, each a separate little world of its own. What they desperately needed was leadership provided by one boss who was not subject to the partial veto of four or five other authorities, each of whom claimed partial jurisdiction.

The recent changes in logistical organization are intended to furnish them precisely that leadership.

Deputy Chief of Staff for Logistics

The first step was to change G4 into a Deputy Chief of Staff.

The second and concurrent step was to spell out the grant of command authority, not only in all logistical matters but also in a number of things which G1, G3, the Comptroller, etc., have heretofore handled direct with the Technical Services. What I hope we have accomplished, by adding all those words to my charter, is a real clarification of authority and responsibility.

That was all that was needed. There are no jealousies or feuds between me and the other gentlemen concerned. They are my lifelong friends. They have demonstrated so conclusively their right to my respect and their fitness for their high positions that I am always inclined to place their judgment ahead of my own.

It is a nice thing to be able to say that, in complete sincerity, about your associates—and it is that mutual trust and confidence above all else which makes our Army great. I hope and believe that the same feeling exists between me and the Chiefs of the Technical Services.

And I want to make very clear—and this is important in order to be fair—that I have found the seven Technical Services entirely willing to play ball with me 100 per cent. It was no fault of theirs that there were defects in our teamwork.

When Secretary of Defense Lovett left office two years ago, he said in his final report (18 November 1952): "A reorganization of the technical services would be no more painful than backing into a buzz saw, but I believe that it is long overdue."

I have great respect for Mr. Lovett, but after looking at the problems for two years, I am sure that we can isolate and define them and deal with them reasonably; and I am sure I will have no buzz saw scars afterward.

Chief of Transportation

Maj. Gen. P. F. Yount

The seven "technical services" of the Army have reasonably distinct functions: a construction service, a communication service, a medical service, and a transportation service; and then a supplier of consumer goods, a supplier of munitions, and a supplier of toxic agents.

Each one of these technical services was actually born in war; born of the stern reality of war. There is nothing which prevents their being changed whenever new conditions make changes desirable. The Secretary of the Army can transfer responsibilities among them by a simple directive; everyone remembers several such changes since 1940.

Chief Chemical Officer

Maj. Gen. W. M. Creasy

The difficulty heretofore has been that nobody had full responsibility and authority to weld them into a single integrated system.

We have now taken that decisive, but not revolutionary, step; and now I think we will quickly see a number of fuzzy areas along the fences between the Technical Services. We will get busy clearing out this underbrush. And then, I suspect, we will uncover quite a considerable number of problems, which have been hampering us seriously all this time, undetected because they have been obscured by the brush.

We are already far advanced in creating uniform supply and accounting procedures which will soon give us a homogeneous supply system instead of seven dissimilar systems.

We are already far advanced in gaining control of our $24 billion inventory, buying only what we really need and getting rid of what we no longer need and closing expensive depots which we can do without.

We are already far advanced in an attack on the strangling problems of maintenance and repair parts.

There are major tasks to be faced.

We must improve the whole system of developing logistical managers. For 50 years, we have had a magnificent process for developing tactical commanders for higher and higher responsibilities. Nobody can pretend that these officers come to the higher commands with a comparable readiness to deal with their logistical responsibilities.

By the same process, highly trained G3's are now available in very sizeable numbers, while highly trained G4's are the scarcest article in the world. Yet the G4 job is far more difficult. I speak from considerable experience in both fields.

We have the best supplied, best cared-for Army the world has ever seen; but we can furnish the same service far more effectively. And we have got to do so, if the United States is to survive into the 21st Century. That is the real meaning of the recent change in the logistical organization of the Army.

That is where we have arrived at this moment in *Time*.

CARDED

# MOBILE CONCEPT

The views expressed in this article are the result of certain studies made at the Command and General Staff College.

MUCH has been written recently in military and civilian publications about the merits and demerits of mobile warfare. Before reaching judgment on the problems presented in these arguments, it is necessary to understand fully what the *Mobile Concept* is. This article attempts to clarify the issue.

There are, in general, *two* distinct concepts of strategy and tactics. For lack of better titles we will call them the *Broad Front Concept* and the *Mobile Concept*. In actual practice each borrows from the other. However, such borrowing results in only minor compromises. The basic concept remains the important factor and must be kept isolated for proper evaluation.

Important to either concept is fire power. In the Broad Front Concept this fire power must be distributed over wide fronts if it is to have the capability of destroying the attacker and overwhelming the defender. Reliance on this type of fire power requires large infantry formations supported by other arms and services. Large numbers are required, as the force must be deployed over wide areas in order to cover the entire front in sufficient strength to be effective. Infantry formations constitute the heart of the organization and the tempo of the battle is necessarily geared to the speed and range of the infantry soldier. All other elements —even motorized or airborne—must follow this tempo as they continue to fulfill their supporting role.

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In the defense, a general line is established and it is expected that the attacker be defeated by overwhelming fire power. Reliance is placed on defeating the enemy in front of or within the battle position by bringing all available weapons to bear on him there. If a penetration of the battle position is made, it can be restored only by relatively local counterattacks. Units employed in the battle position generally conduct their operations on a hold-at-all-costs basis.

Under the Broad Front Concept, when superior forces—a combination of numbers and fire power—become available, and only then, is it possible to adopt the offensive. Under these conditions the offensive is characterized by attacks over relatively wide fronts. The entire line—or the major part thereof—is advanced by stages until the enemy is broken by weight of numbers and fire power. These are essentially the tactics of World War I and the concept principally followed by the United States Army in World War II.

The Mobile Concept

In contradistinction, the Mobile Concept places reliance on sustained power coupled with maneuver. Maneuver is used to achieve superior power at a time and place where decisive results may be obtained. Mere movement achieves nothing; it must be accompanied by superior power. The Mobile Concept disdains deployment of forces over the entire front because of the inherent weaknesses in linear warfare and in the resulting dissipation of power. Deployments are made only where absolutely necessary. The great strength of the fighting force is husbanded so as to be available for the decisive blow at the critical time and place. In this manner the highest degree of flexibility is retained since the power is ready, rapidly, to meet changing situations and unexpected developments so common in battle. In this manner the battle is never allowed to become or remain static; it is kept open in order to gain scope for the maneuver of the available power at the decisive time and at the decisive place.

Since all armies possess a degree of mobility, the key to understanding the Mobile Concept rests with the term relative mobility. In order for this concept to be employed successfully, it is essential that superior power and maneuverability over the enemy be present. The less mobile force will be outmaneuvered and outfought.

Speed

Speed then becomes an important factor. Speed becomes physically possible by employing forms of transportation which can move rapidly from one area to another. Speed is sustained only by using transportation which can also survive and maneuver on the battlefield. Thus, the tempo of mobile warfare in its purest form is presently geared to the speed of the motor-driven vehicle. Since these vehicles must be capable of employment throughout the course of the battle, only the tank and the armored personnel carrier today possess the characteristics and capabilities required. Such vehicles make possible speedy maneuver of power. The keystone of success in mobile warfare rests heavily on this organized speed. The organizations which can best achieve this are large armored formations.

Defensive operations conducted under the Mobile Concept are characterized by adherence to the objective —destruction of the attacking enemy forces. If a line or a general area is to be defended, relatively light and mobile screening forces are used to lean up against the enemy. The bulk of the force is kept in reserve. The defense is conducted by attacking the enemy with this reserve either in front of, within, or behind the general line or area. Such an attack is made when and where the defender has the greatest advantage. In this manner the defender seeks to retain the highest degree of flexibility and initiative possible under defensive conditions.

The offensive is characterized by strategic and tactical envelopments and penetrations deep into the enemy rear. Mobile forces possessing sustained combat power are maneuvered or fight their way into the enemy rear. Upon gaining this favorable position, enemy reserves, communications, supplies, and other forms of support are destroyed. In the end this results in a speedy destruction of the enemy forces. Such action has a high degree of probability of success. The attacker maneuvering his force to the critical area enjoys a superiority difficult, if not almost impossible, to overcome. He possesses the initiative and the type force capable of flexible employment. The attacker lives in an atmosphere of certainty. The defender is hampered by uncertainty through loss of initiative. He is forced to counter. Therefore, he is one move behind instead of one move ahead. It is in this manner that numerically inferior forces attain the capability of defeating numerically superior forces. These are essentially the tactics employed by the Germans in their campaigns in the West.

The ultimate in operations under the Mobile Concept is the employment of large armored formations in conjunction with large airborne forces, generally of corps size. Airborne forces seize objectives and localities deep in the enemy rear, which contribute the maximum to the defeat of the enemy and provide a base for further operations of large armored formations after link-up. The inability or lack of forces to hold open land lines of communication in rear of the advancing large armored formations to the point of link-up is not considered a bar to such operations. The advancing force does not divert its strength to this purpose. Under these conditions logistic support for such forces must necessarily be provided by some means of air resupply. It is recognized that operations of this magnitude will require air superiority and that the employment of atomic weapons will play a major role.

U. S. Army
The Armored Personnel Carrier greatly improves the speed of the Infantry.

U. S. Army
Tanks, with their inherent mobility, add much firepower to the battlefield.

Fairchild
Logistics for fast moving Armored columns must be furnished Air resupply.

The Principles of War

The fundamental truths governing the prosecution of war are found in the principles of war. Since the principles of war do not all apply equally in all cases, and the greatest success can be expected where the principles of war apply to the greatest extent, we must examine formations and tactics in light of the principles of war to ascertain those formations and tactics that present the greatest possibility of success.

Every military operation is directed toward a decisive, obtainable objective. The ultimate military objective is the destruction of the enemy's armed forces and his will to fight. Each phase of a war and each separate operation must be directed toward this objective. The maximum means available must be applied to this end.

In this era of mass destruction weapons, high-speed aircraft, and guided missiles, the objective must be reached in the quickest possible time. Unless the enemy's armed forces and his will to fight are destroyed quickly, even the victor may suffer such great physical and moral damage that it is difficult to foresee national survival as we have known it in the past. Therefore, speed of action is mandatory.

Under the Broad Front Concept objectives are usually a succession of relatively close-in terrain features across the front, so selected as to ensure the general advance of the front. Similar type objectives are assigned relatively shallow exploiting forces employed in conjunction with the advance. Seldom are the enemy forces the objective.

Objectives assigned under the Mobile Concept are generally deep and are usually the destruction of enemy forces. Only those terrain objectives necessary to the destruction of the enemy forces are assigned. Since it is generally accepted that final victory is accomplished only when the enemy forces and their will to resist are destroyed, it would appear that this principle of war favors the Mobile Concept.

Mass

Mass implies the application of maximum available means at the point of decision. Mass does not necessarily mean concentration of forces, but rather disposition of forces so as to be able to unite—in a predetermined direction—superior weapons and equipment in conjunction with superior tactics and morale. In this manner power is applied at the proper time and at the decisive place.

Generally the forces employed under the Broad Front Concept are disposed with approximate equal strength along the front. In the offense the amount of mass that can be achieved is limited because of the many attacks required to advance the front uniformly. This lack of really true mass results in the limited depth to which exploiting forces can operate. In the defense the effort to remain strong in all places precludes the use of mass in those places where the enemy chooses to make his major effort, and does not take cognizance of the enemy's likely employment of large mechanized formations in penetrations of great depth. It is defense with a defensive attitude, relying on the strength of each position, rather than offensive employment of mass.

The Mobile Concept does not accept the necessity of strength all along the front. In the offense it permits the massing of sufficient force in order that exploiting forces can achieve deep and decisive objectives, while the remainder of the front may be held or contained by minimum forces. In the defense it permits the defender to mass his forces in the decisive place and allows time to counter major enemy threats by offensive action. It is the conduct of the defense with an offensive attitude.

Maneuver

Maneuver on the battlefield is necessary to obtain a relative superiority in combat power at the time and place selected. By proper and timely maneuvering of forces in order to concentrate combat power at a decisive point, a commander is able to place the enemy at a relative disadvantage. Maneuver used properly permits the commander of a numerically inferior force to gain the advantage over a numerically superior force. This is not possible if forces are distributed generally over a broad front. Maneuver must be accompanied by a massing of combat power in order to achieve results. Concentration of combat power is a matter more of time than of space. Forces must be capable of a high degree of battlefield mobility if this is to be achieved. Concentration in terms of time is of decisive importance considering the effects of mass destruction weapons. It permits the commander to disperse his forces to present the least possible remunerative targets for mass destruction weapons and, at the same time, provides him the capability of exploiting his use of mass destruction weapons and preventing the enemy's exploiting his.

Offensive action is necessary to victory. Such action permits the commander to exploit the initiative and impose his will on the enemy. Even on the defensive the commander seeks every opportunity to seize the initiative and achieve decisive results by offensive action. Under all circumstances the offensive must be undertaken with sufficient power to achieve effective results. Dispersion of power over broad fronts produces negative results and does not contribute to the offensive since at no point does the commander have the necessary power to seize the initiative and start the offensive unless overwhelming numerical strength and fire power are possessed. Under the application of the Mobile Concept, a commander with a numerically inferior force can concentrate, by proper maneuver, superior power at a decisive time and place to permit the seizure of the initiative and the launching of the offense.

Economy of force dictates that only minimum essential means be employed at points other than that of decision. It permits a proper balancing of force and a judicious expenditure of forces, thus permitting an effective concentration at the desired time and place. To spread the power of the force along a general front violates not only this principle but also the principle of mass. The visualization of decisive results being achieved by spreading fire power over a wide area is a snare and delusion. This principle is the corollary of the principle of mass and the discussion of this principle above applies.

Surprise may shift the balance of combat power in favor of the commander who achieves it. It consists of striking the enemy when, where,

U. S. Army

An inferior force concentrated at the proper time can gain the advantage.

and in a manner for which he is unprepared. Surprise can achieve both physical and moral results. Its elements are secrecy, originality, audacity, and speed. It can be most effectively achieved by maneuver of superior combat power to a critical point of decision in such a manner as to preclude the enemy from reacting in time.

Unity of effort requires full application of available combat power. Such action is thus co-ordinated toward a common goal. For maximum efficiency each operation must be under a single commander with requisite authority. This arrangement permits flexibility of mind and rapidity of decision on the part of both the commander and his subordinates. Only in this manner can speed of action be achieved with a minimum of time lost. To gain the best results from application of this principle a high order of physical mobility is required, so that all available forces can be concentrated rapidly and economically at decisive places and times.

Simplicity is always a keynote to successful military operations. Battle is permeated with an atmosphere of doubt and uncertainty. Therefore, tactics used to overcome an enemy must be an extension of commonsense based on the application of a few general rules. Simplicity must be applied to formations, methods, and means in order to produce orderliness on the battlefield. A generally even distribution of forces over a wide area does not necessarily produce simplicity. On the contrary, even distribution may lead to complexities once the operational phase has begun and original dispositions disturbed. This is one of the weaknesses of the Broad Front Concept in the operational phase which oftentimes must be cut short of the obtainment of decisive objectives in order to overcome unmanageable complexities. Dispositions must be such as to permit a commander to force operations to swing the way he desires. Operational concepts must envisage how the battle is to be fought as far into the future as is practicable. If the plan is sound, except for minor irritations, a commander can continue to his objective with little deference to enemy reactions. Simplicity is achieved in this manner. Herein lies a great strength of the Mobile Concept where success is geared, in the major part, to the operational phase.

U. S. Army

Well dug-in emplaced tanks yield firepower but sacrifice tactical mobility.

Security is essential to the application of the other principles of war. It consists of those measures necessary to prevent surprise, avoid annoyance, preserve freedom of action, and deny to the enemy information of our forces. Security denies to the enemy and retains for the commander the ability to employ his forces most effectively.

Although not included within the framework of the principles of war, *morale* and *esprit* are of such importance that they must be included here. Of all the factors that influence the fighting spirit of the individual soldier, morale and esprit are most important. These qualities rest on a spiritual, intellectual, and material foundation. The foundation is spiritual in that every man must feel that his task is of the utmost importance. It must create a positive, aggressive, and offensive state of mind. Men are influenced by emotion. Morale and esprit must be based on the intellect not on emotional factors; otherwise morale and esprit will tend to break down under the stress of cold realities. Men must know that the objective is real and attainable, the organization is efficient, and that the commanders are competent. This is achieved best by success. Morale and esprit in modern war are influenced by possession of, and confidence in, efficient material. Although all experienced soldiers expect to find themselves at disadvantages at times, the fact that they possess and have confidence in superior weapons, equipment, organization, and tactics which will permit them to win, has a decisive effect on their state of mind. It leads directly to the offensive spirit which generates victory. The corollary to the Mobile Concept is the offense—to the Broad Front Concept, it is the defense.

From this discussion of the principles of war, it appears that the advantages inherent in the Mobile Concept far outweigh those incidental to the Broad Front Concept. In fact it is quite obvious that the Mobile Concept embodies the principles of war while the Broad Front Concept stands in direct conflict to them.

Past Experiences

Since doctrine is established through experiences gained in wars, by studying past wars, and by application of reasoned conclusions concerning tactical effects of new developments in devices and systems between wars, an analysis of these two concepts within these terms is pertinent.

World War II contains excellent examples of the two concepts employed by opposing major fighting forces. The French created a mass infantry army between 1918 and 1939. This army was superior in numbers and machines to any other in Europe. Based primarily on World War I tactics, the French campaign plans envisaged a linear defense utilizing fixed fortifications and natural obstacles from the Swiss border to the North Sea. The shock of any major offensive was to be taken up by units employed in the line supported by many, but small, tank formations. Superior fire power distributed generally along the front was to serve as the decisive element of the defense. Relatively small reserves were available to restore penetrations of the line by counterattack. Since tanks, artillery, and air were distributed along the front in support of the infantry only, the battle was necessarily geared to the speed of the infantry soldier. These operational concepts appeared to be based on keeping the battle static. Curiously enough, such conditions, even if achieved, could only result in a war of annihilation. No nation could afford such a concept, even at that time, because of the destructive power of available weapons. Thus, although numerically superior and with the bulk of the German power engaged in Poland, the French were not organized to properly conduct a successful attack against an exposed Germany. Employing organizations and tactics such as they were, they could not afford the casualties envisaged. There is an important corollary that accompanies the Broad Front Concept. This corollary is the defensive attitude—a reluctance to adopt the offensive in spite of the fact that only by such action can a war be successfully concluded.

It is a well-known fact that the loser of any war has one outstanding advantage over the winner. The victor in reorganizing and adjusting doctrine is influenced by self-esteem and a feeling of possession of superior organization, equipment, training, leadership, morale, and esprit. The vanquished orients his thinking and subsequent action only after a careful and soul-searching analysis of events. Weaknesses are eliminated, not shrugged off. This is done with considerable humility. The most convincing lessons are learned from defeats. The Germans learned well the bitter lessons of defeat. Fully realizing the costliness of positional warfare of World War I, they created forces that had the capability of breaking the static front and keeping it open throughout the operational phase until the war was fought to a successful conclusion. In this manner they retained maximum flexibility and initiative. The forces created to accomplish this were the *Panzer* divisions, corps, and armies. These forces, operating within the framework of doctrine embodying the principle of full mobility, brought an army, held in very high worldwide esteem, to defeat in such a short time as to cause profound shock throughout the world. The fact that the key to German success was found in mobile doctrine and forces can be readily seen when it is realized that in addition to a numerical superiority in manpower, the combined Anglo-French forces enjoyed a superiority of approximately

Captured German Photo

The Germans proved they benefited by their own mistakes with their sweeps across Poland and France in the early 40's.

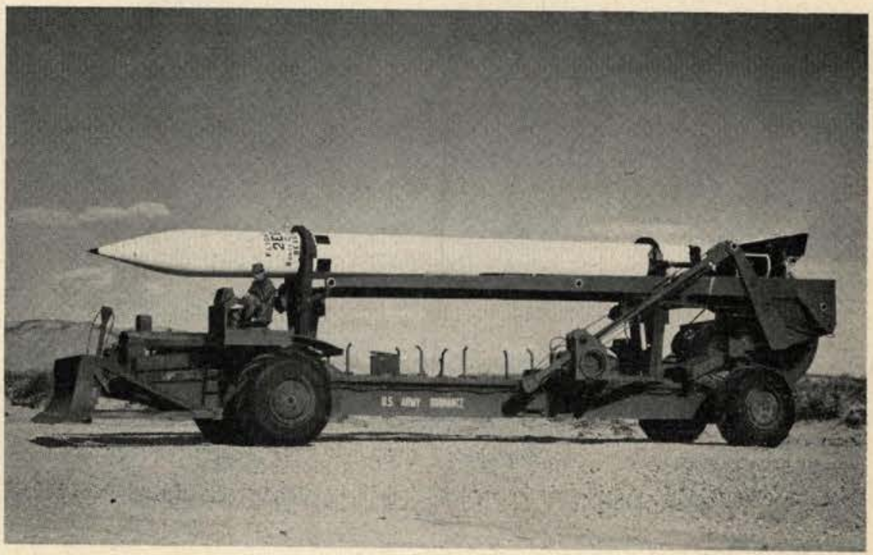
4,000 to 2,800 in armored vehicles and the quality of armored vehicles was not overwhelmingly in favor of the Germans.

Available evidence discloses that the Soviets profited to the maximum from the lessons learned from early defeats of their large infantry army in the western part of the Soviet Union at the hands of German mobile forces. Apparently one of the strengths of the Soviets is their ability to clearly ascertain weaknesses and to correct them. This ability constantly amazed the Germans. The great defeats of the Germans in the east in the final year of World War II were brought about by massive armored forces employed in a highly mobile manner. The Soviets learned their lesson over 10 years ago. They have continued to make progress since that time. Their forces apparently contain a much higher ratio of armored mobile units to infantry units than they did during or at the conclusion of World War II. They have the further advantage of having these mobile forces in being. This means they have been able to advance the state of training of their army in the employment of mobile forces. They have not permitted themselves the luxury of a complacent attitude which leads to stagnation instead of progress. Their mobile capabilities are founded in fact, not fiction or contemplated plans filed away for future use. They have learned well the lessons of history and experience.

Science is constantly providing new and improved devices of war. This progress is as relentless as time. Scientific developments throughout history have accomplished two things: increased power to destroy, and increased capability of controlled movement and communications. These are the essentials of mobile warfare. Thus, the efficiency of mobile warfare is ever-increasing. The side that fails to keep pace faces inevitable defeat just as the French did at the hands of the Germans. Atomic warfare brings with it much greater power of destruction—destruction that will most certainly keep the battle open and render large-scale static positions useless and untenable. Improved vehicles and means of communication will increase ability to maneuver. The speed of movement will be much greater than has ever been known in

U. S. Army

The Helicopter has definitely increased our capability of controlled movements.



U. S. Army

Guided missiles, such as The Corporal, have increased our power to destroy.

U. S. Army

Tactical atomic weapons emphasize the need for rapid battlefield maneuver.

our past military history.

Study of past wars, experiences, and new scientific developments leads to the conclusion that the Mobile Concept is far superior to the Broad Front Concept in every respect. This being true, it is only logical to determine what we must accomplish now.

It is well recognized that if a war comes its tempo will be far greater than we have experienced in the past. Neither side will be able to afford the slow mobilization of forces known in the past. The war might well be finished before such forces begin to leave the training areas in time to be effective.

Life

A tactical air force must be ready to capitalize on the capabilities of mobility.

First, we must clearly formulate the doctrinal concepts under which we will operate. Doctrine must be based on mobility—power coupled with unexcelled ability to maneuver this power at the decisive time and to the decisive place. Defensive attitudes and concepts based on fixed patterns of operations must be stamped out wherever they exist. Flexibility of thought and action must be sought for and practiced at all levels.

Second, superior mobile forces must be created now in sufficient numbers to permit training, to absorb the initial shock of war, and to provide the base for future forces of adequate strength to be capable of bringing the war to a successful conclusion. At the present time we have an excellent start in this direction. Our knowledge of airborne and air-landed operations is unexcelled and gives us a weapon of great strategic mobility. Our infantry division contains great power and ability to move from one area to another, if motorized. The current armored division is organizationally sound. Available armored equipment, especially the armored personnel carrier, is excellent. Available tanks possess great fire power and armor protection. However, these tanks are deficient in range. This deficiency must be corrected without delay. Otherwise our armored forces will possess a limitation in a war of movement which will be difficult, if not impossible, to overcome on the battlefield. Our ability in the air should give us a superior tactical air force which will increase the operational range of a truly mobile ground force. We presently possess new weapons of vast destructive power.

The Present

At the present time our ground formations are based largely on infantry formations supported by tanks, artillery, and air. The resulting tempo and range of operations will, therefore, be geared in general to that of the infantry soldier. Remembering that the key rests in relative mobility, it can be seen that if massed mechanized and tank forces are met, they, not us, will possess the superior mobility.

The solution lies, therefore, in the creation and training of large, highly mobile formations based on the characteristics inherent in armored formations of corps and, perhaps, field army size. We should have available sufficient armored divisions and corps headquarters to provide the training and nuclei around which large offensive ground formations can be built in time for a strategic offensive designed to bring any possible war forced upon us to a very rapid and successful conclusion.

By organizing around the mobility inherent in large armored formations, we will, at the same time, increase the capabilities of our airborne and air-landed forces. These forces can then be used in large numbers at critical points deep in the enemy rear since our overland striking forces will possess the power, speed, range, and maneuverability required in link-up operations. A tactical air force operating in conjunction with mobile overland forces will be able to capitalize on its rich capabilities of range, speed, and fire power. For maximum results the tactical air must not be tied to the tempo of the infantry soldier.

The Future

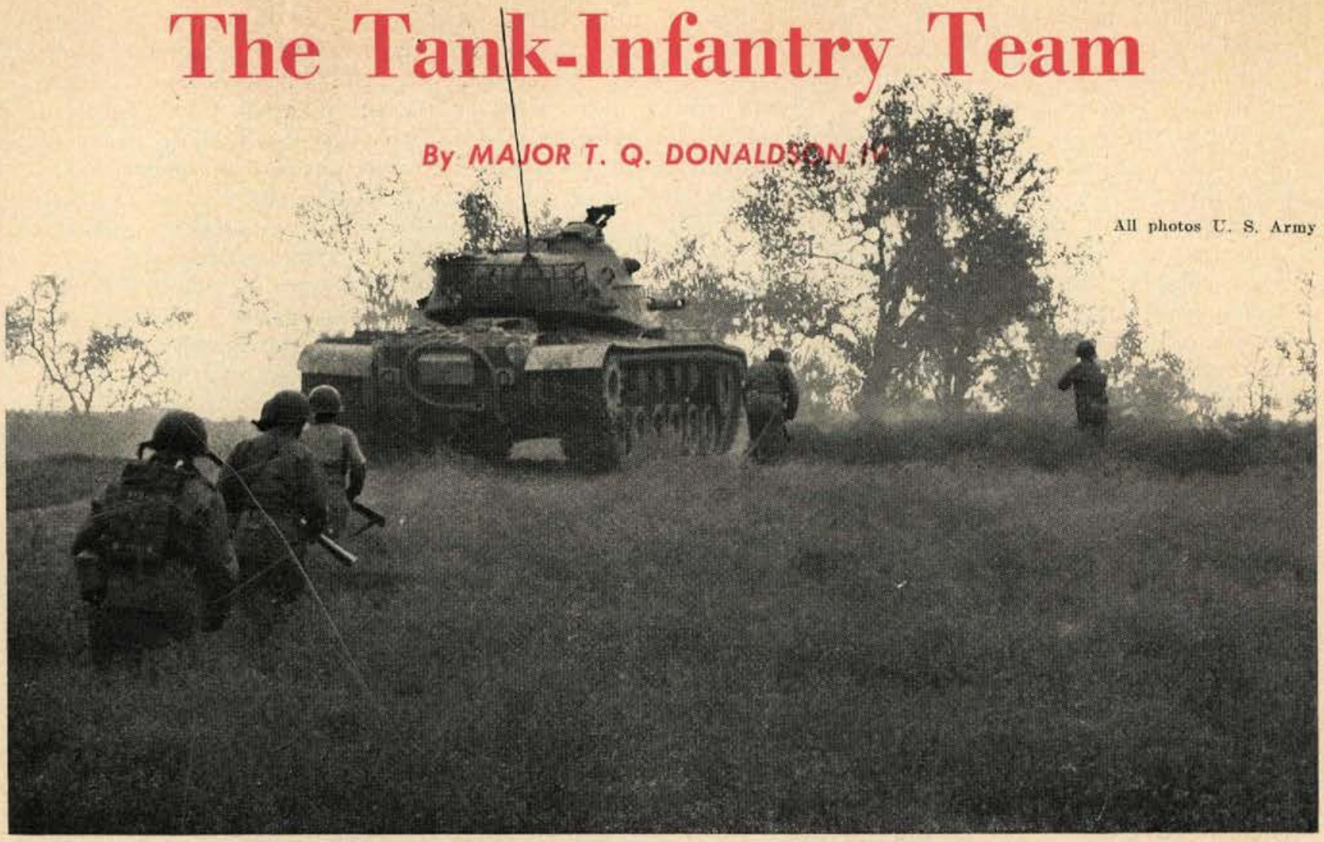
Thus, it can be readily seen that the Mobile Concept has as its very foundation the fundamental truths governing war—the principles of war. The Broad Front Concept stands in direct conflict. History and past experience indicate that forces possessing the highest degree of mobility in organization, thought, and action come out best. New developments and scientific achievements have and are greatly increasing both power and the ability to maneuver. These developments increase our capabilities for mobile warfare if we choose to go along. Although it is recognized fully that creation of large armored formations is costly—mainly in terms of dollars—the paramount question at this time is not one of cost. The question is, "Are we willing to pay the price for the type ground forces required to ensure victory in a war in which modern weapons and equipment are certain to be a decisive factor?"

Our national characteristics, industrial capabilities, and limitations in manpower beg us to answer this question in the affirmative. We must keep uppermost in mind that the one thing we cannot afford is to lose a war.

CARDED

The Tank-Infantry Team

By MAJOR T. Q. DONALDSON, IV



All photos U. S. Army

THE 1st Armored Division recently completed a type of instruction in tank-infantry teamwork which proved of great value to units throughout the entire Fourth Army Area. This instruction used as a basis a team composed of a tank platoon and an infantry—*not armored infantry*—platoon. This training project was carried out by an instruction team of the 1st Armored Division.

The 1st Armored Division Tank-Infantry Training and Demonstration Team was created at Fort Hood, Texas, in late November, 1953, in response to a directive from Lieutenant General I. D. White, the Commanding General, Fourth Army, that a team be formed for the purpose of conducting tank-infantry training and demonstrations at certain specified major installations throughout the Fourth Army Area. The mission of the team was twofold: first, to train at each installation highly-skilled demonstration platoons, capable of conducting correct tank-infantry team instruction for the benefit of units and personnel of the local installation; second, to prepare and carry out a demonstration of designated tank-infantry team techniques for selected local audiences at each installation. Only five days were authorized for travel, instruction, demonstration and return from each installation. The team formed to accomplish this worthwhile and ambitious task consisted of a team commander, a tank platoon leader, an infantry platoon leader, four tank commanders, an infantry platoon sergeant, and four infantry squad leaders. Experience soon indicated the need also for a highly skilled demolitions coordinator and for an alternate tank platoon leader who, in addition to filling in for the tank platoon leader when required, could supervise such administrative details as: acquisition and transportation of ammunition, training aids, and communications equipment. He was invaluable also in acting as the team representative in liaison with local agencies, since the chief instructor and the remainder of the team were almost continuously in the field.

Included in the 1st Armored Division's instructions to the team was the directive that:

> Instruction and demonstrations will teach the following:
>
> a. Tank-Infantry teamwork, over various types of terrain and in various combat conditions, to include fighting in:
>
> (1) Built-up areas.
> (2) Wooded areas.
> (3) Open terrain.
>
> b. All types of communications available to the team.
>
> c. All means of target designation.
>
> d. Fire distribution.
>
> e. Capability of quickly bringing fire to bear on targets of opportunity.
>
> f. Artillery requests by infantry through use of tank communications equipment.

Tank-infantry team instruction was, of course, not new to the 1st Armored Division. From the beginning of basic unit training, tank and armored infantry platoons had conducted integrated team training in a series of platoon level problems. Platoon training had culminated in tests

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conducted on Fort Hood's Tank-Infantry Combat Course, which is designed to test platoon proficiency and tank-infantry teamwork thoroughly. This course, which is a model of its kind and includes mortars, armored field artillery, and simulated tactical air support, had first been established by Lieutenant General Bruce C. Clarke, when he commanded the 1st Armored Division. Since its inception, the course had been changed from time to time to reflect the current thinking of distinguished armor leaders, who, realizing the importance of fundamentals in all training, had devoted much time and effort to making the course an invaluable training vehicle. From the initiation of training at the lowest level and continuously up through progressive echelons, the constant theme which had been pounded home was the use of the tank-infantry team. Nevertheless, the particular method of instruction which is the subject of this article was a departure from the usual system employed.

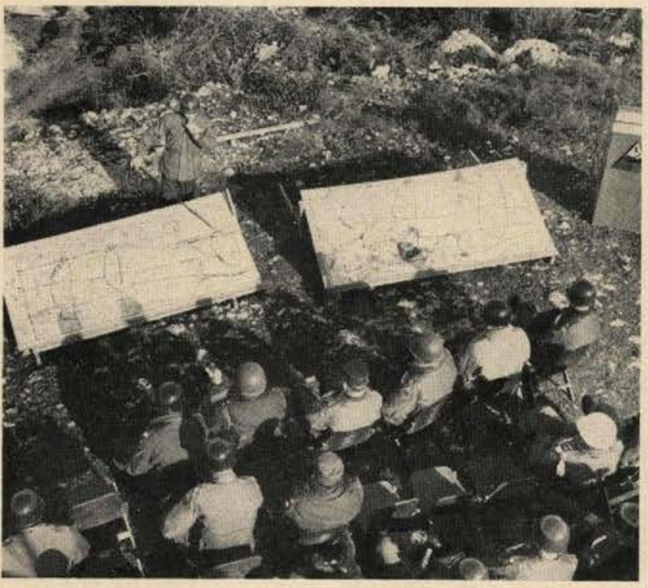
A factor which is readily conceded but sometimes not thoroughly understood is that there is a basic and very important difference between a problem and a demonstration. One is designed primarily for the benefit of the participating troops while the other is designed mainly for the benefit of the audience. If conditions exist which allow both to benefit to the maximum, the outcome is a most happy one. Usually, however, demonstration troops will be forced into some situations which, while not entirely sound tactically from their point of view, are created to illustrate specific points to the audience, who as a result of the location, get a decidedly different impression of the action being conducted.

This factor had a most important bearing upon the development of the plan of instruction. It was necessary to create a program of instruction which would assure that the troops of the local installations while rehearsing their roles in the final demonstration, would concurrently reach a high state of proficiency in tank-infantry team techniques before that demonstration was staged.

Since the state of training of the troops at each installation was an unknown quantity, not one but two separate programs of instruction were developed, with separate lesson plans covering subjects considered essential for the two anticipated possibilities: (1) relatively untrained troops, and (2) troops proficient in their own tactics and technique but weak in tank-infantry techniques. These two programs were drawn up to allow maximum use of practical work, most of which would also serve as partial rehearsal, and an absolute minimum of conference or lecture type instruction. As finally evolved, approved, and successfully practiced, the proprogram is shown in *Figure 1.*

State of training was one variable —suitability of local terrain was another. Obviously, it was too much to expect that an audience could be seated in one area at each installation where action in woods, in open terrain, and in a built-up area could be viewed as part of one demonstration. Just as obvious was the fact that the use of live ammunition would further restrict the team in selection of a suitable scene of activity. Terrain, as it exists on the battlefield, was the key factor throughout the instruction. Though it was not required that the demonstration be conducted as a continuous action, it was the conviction of the chief instructor that a showing of parts without the whole would be relatively ineffective when compared to the impression created by a continuous offensive action illustrating the required techniques in logical sequence. Too many training attacks cease on the first hill; too much instruction is piecemeal in everyday practice.

Although the use of blank ammunition allowed more flexibility in the choice of terrain than live ammunition would have permitted, the problems created thereby in the simulation of artillery concentrations, tank gun hits, enemy weapons fire, and destruction of targets of opportunity presented a ticklish problem in timing and demolitions coordination, not to mention in safety. Varying with the type of terrain available for use, a demolitions detail of from six to ten men was found necessary. This requirement itself created a related



Orienting the audience prior to the demonstration which progressed across their front over a distance of 3000 yards.

An infantry squad leader briefing his men before moving forward to observe route of approach to assault position.

training problem which was solved, as mentioned earlier, by the addition of a competent demolitions coordinator to the team.

With the exception of lesson plans, of light, portable, chart-type training aids, and on one occasion of some communications items, everything necessary for producing training and demonstration was procured locally, often with interesting results. Before the visits were over, the team had trained tank platoons equipped with M4's, M47's, and M48's, created infantry platoons from artillery trainees, and utilized practically every type of communications equipment now in the hands of troops.

Once the selected demonstration platoons had reached a high state of proficiency in tank-infantry team techniques, there remained the problem of suitably and dramatically illustrating these techniques by means of a demonstration for a large audience. It was felt that the teaching points highlighted in their normal tactical setting might well become lost unless specific attention were focused on the techniques before the demonstration started. Hence it was planned that at each installation there would be an initial conference period, in which the entire subject of tank-infantry teamwork would be discussed. During this period, close-up and short demonstrations of specific points of technique would be illustrated. Included, for instance, would be a close range look at each of the team members, accompanied by a short description of the major characteristics and

PROGRAM OF INSTRUCTION

Day	*Hour*	*Presented To*	*Subject*	*Scope*	*Type*
1st	Travel to installation — arrival				
	1300–1700	Project O Leaders Cadre	Orientation, reconnaissance, organization for instruction		
2d	0800–0900	Inf Plat	Familiarization with tank and tank platoon	Characteristics, and limitations of tanks, formations, control communications	C & DEM
	0900–1000	Tk Plat	Familiarization with Inf Plat	Characteristics, formations, control, communications	C & DEM
	1000–1030	Tk Plat Inf Plat	The Tk-Inf Team	Role, composition, command, control	C
	1030–1100	Tk Plat Inf Plat	Tk-Inf Commo	Means and use	C
	1100–1200	Tk Plat Inf Plat	Tk-Inf Commo	Means and use	PE
	1300–1400	Tk Plat Inf Plat	Fire distribution and target designation	Brief description followed by practical exercises	C & PE
	1400–1700	Tk Plat Inf Plat	Methods of attack	Basic methods of attack in terms of axis, timing, rate of advance, control	C & PE
3d	0800–0930	Tk Plat Inf Plat	Assault and reorganization	Continuation of methods of attack: timing, actions on objective, preparation for continuation of advance	C & PE
	0930–1200	Tk Plat Inf Plat	Attack in woods	Control, formation, method of moving, rate	C & PE
	1300–1400	Tk Plat Inf Plat	Attack in built-up areas	Control, formation, method of movement	C
	1400–1700	Tk Plat Inf Plat	Tk-Inf team in attack	Practical exercises over several objectives requiring continuity of action and changing methods	PE
4th	0800–1700	Tk Plat Inf Plat	Tk-Inf team in attack	Practical exercises and rehearsals on terrain selected for demonstration	PE
5th	2 hrs	Selected Group	Tk-Inf team	Role, composition characteristics, communications, methods of advance	C & DEM
	2 hrs	Selected Group	Tk-Inf team attack	Demonstration, illustration characteristics of team, methods of advance, fire distribution and technique, communications	DEM

NOTE: 1. Program of instruction could be changed to fit the situation existing at each station. If the tank and infantry platoons were not well trained in their own basic tactics and techniques, the instruction scheduled for the first day had to be modified to include basic training in communications, gunnery, and tactics, as indicated below:

Hour	*Presented To*	*Subject*	*Scope*	*Type*
0800–1000 0800–1000	Tk Plat Inf Plat	Basic Communications	Review and practical work in communications means and procedures within each platoon	C & PE
1000–1200	Tk Plat	Gunnery	Review and practical work in fire commands	C & PE
1000–1200	Inf Plat	Infantry Fires	Fire distribution, fire support	C & PE
1300–1700	Tk Plat	Plat Tactics	Review and practical work in basic tactics and formations of the Tk plat of the Inf plat	C & PE

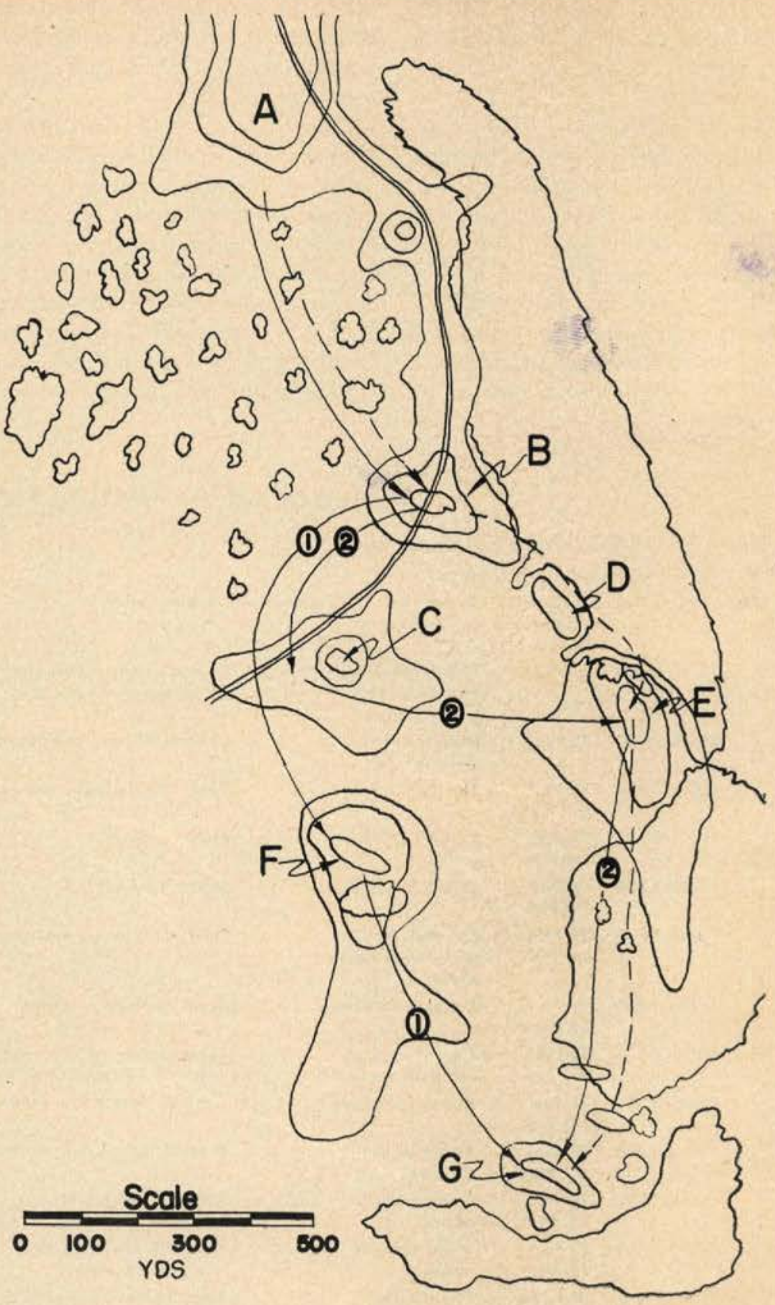
NOTE: 2. If a day of basic training was necessary, instruction scheduled above for the 3d and 4th days had to be combined. Throughout all training periods, instruction had to take place in the demonstration area, with practical work being conducted over the same terrain to be used in the final demonstration.

Figure 1.

component parts involved. Infantry use of the external tank telephone was another item which, of great importance, is the type of small detail easily missed when viewing a tactical action. These techniques and many others were discussed during the initial conference period, which lasted approximately two hours.

The final demonstration was designed to illustrate all of the techniques discussed during the conference. As the chief instructor conducted a narrative, the audience was able to listen to requests and instructions from the two platoon leaders concerned by means of "piped in" transmissions. The team action itself took place within the framework of an overall infantry company offensive action. The team commander in this case was, of course, the infantry company commander, the two platoons forming a tank-infantry team through their mutual assistance and cooperation. During the course of the demonstration, the flexibility not only of the team itself but also that enjoyed by the company commander in employing his organic platoons was illustrated by changing the infantry team member from one platoon to another as various objectives were seized. These changes were effected by changing the call signs of the infantry platoon in response to verbal orders, heard by the audience, of the company commander. Actually, the same infantry platoon was used throughout the demonstration. Illustrated at *Figure 2* is a sketch of a typical demonstration.

It is rather obvious that a demonstration which was originally designed for predominately non-armor audiences should be based on an infantry organization and on typical infantry-type action; but why present this instruction to leaders of armor, who come more into contact with armored infantry and whose daily training is permeated by the ever-present tank-infantry team concept? That question occurred at first to many, but a moment's reflection by anyone familiar with tank-infantry teamwork supplied a ready answer. The basic combat techniques employed by the tank-infantry teams in the infantry division and in the armored division are identical. The armored personnel carriers of the armored division are of great assistance to armored infantry



METHOD OF ATTACK:

A-B: Tks & Inf on one axis through woods.

B-C: Tk section assaults, supported by other section and by Inf fires from B. Inf Plat advances through woods to assault position prior to atk on E.

B-F: Tk section on B assaults F under time fire.

E: Tks & Inf on converging axes. Tk section on F supports atk initially by fire on E, shifts fire when masked, to woods on south slope of E, then to high ground at G, and destroys targets of opportunity appearing as result of assault on E. Smoke on G assists in protecting flank of Tk section assaulting E.

G: Tks & Inf attack on two converging axes. One Tk section initially accompanies Inf through woods to vicinity of Inf assault position.

All atks sptd by organic & supporting fires.

LEGEND:

– – → Route of Infantry Platoon
——→ Route of Tank Platoon
1 Tank Platoon Leader & Sec
2 Platoon Sergeant's section.

Figure 2.

units in increasing their mobility, especially when crossing fire-swept areas; they are of ever increasing importance in view of their special value on the atomic battlefield; but the carrier is not a tank. It does not take ground. It does not actively assist the tank in combat nor can the infantrymen inside the carrier perform their vital role in the tank-infantry team as long as they are mounted. In the end it is the dismounted infantryman, acting in conjunction with tanks but conducting his movements according to correct and normal infantry doctrine, who forms the infantry member of the team.

It often comes as quite a surprise to both infantry and armor officers to learn that the doctrine, tactics, and technique of the tank-infantry team described in the field manuals for armor and infantry are identical. Faulty interpretation of this doctrine and the incorrect execution of techniques are the real causes of difficulties and misunderstandings. Armored infantry units should no more invariably ride their carriers to the base of final objectives than should the tanks of infantry divisions normally lumber forward in line at the speed of the advancing infantry companies. Both practices are often bad . . . and seen all too frequently.

Throughout the planning and developing stage of the Tank-Infantry Training and Demonstration Team, which was a responsibility of Combat Command "A," the senior commanders, including the general officers, showed keen personal interest in the team's progress and assisted the team commander by advice and instruction, not only in the normal techniques of instruction but also in the techniques of the demonstration itself. The initial dress rehearsal was followed by a demonstration for the Army Commander in mid December 1953. General White, in approving the concept and execution of the instruction, emphasized certain fundamental points in such a concise and clear manner that a few are reprinted herewith.

> Tanks need infantry and infantry needs tanks.
>
> Tanks attract fire from all weapons; when infantry is too close, it will suffer from fire directed at the tanks.
>
> Tanks can support infantry without actually operating over the same immediate part of the battlefield.
>
> The normal method of tank-infantry attack is on converging axes.
>
> Primary consideration in any combined attack is to get the tanks on the objective first and the infantry immediately thereafter. The second consideration is how best to get the tanks on the objective.
>
> World War I tanks had the same speed as the infantry; but since then, far greater speed, mobility, and fire power have been incorporated into the modern tank.
>
> Tanks require full crews and cannot function in combat without them; whereas, an incomplete infantry squad can generally perform its missions.

The tank pauses while the Infantrymen pass into the lead to clear out the woods.

Following the Army Commander's approval of the project and prior to the initiation of trips by the team throughout the Army Area, General Biddle directed that instruction and demonstrations be conducted for key officers and noncommissioned officers of the 1st Armored Division. This session was but the first of many which were held at Fort Hood in the months that followed. Before the tank-infantry demonstration team ceased its activities, it had performed at Fort Hood not only for the 1st Armored Division but also for the Officer Advanced Class of the Armored School (in April 1954) and throughout the summer months of 1954 for civilian component units conducting training at North and South Fort Hood. Under the continuing supervision of General Biddle, and guidance of the Commanding Officer of the 4th Tank Battalion, a comparatively new team "cadre" presented demonstrations for the 90th, 36th, and 45th Infantry Divisions, the 49th Armored Division, the 112th Armored Cavalry Regiment, and certain USAR Schools. Groups of leaders from the newly arrived III Corps Headquarters and from the newly reactivated 4th Armored Division were accommodated during the course of these presentations for civilian component personnel.

It was the purpose of the 1st Armored Division Tank-Infantry Training and Demonstration Team to dispel doubts on "team" techniques and, by graphic, dramatic presentations of the "right" way, to convince leaders of all arms that the combination of tanks and infantry, acting together in a team based on mutual support, formed an irresistible fighting team, capable of achieving decisive results with minimum losses. Though originally contemplated as a short-range activity, the training value of the team was so dramatically illustrated that the project extended over a period of nine months, during which "the gospel" was effectively preached to audience groups of practically all ranks, arms, and levels of experience.

The Man Behind the Equipment

With the United States leading the way in the world in technological "know-how" and likewise realizing that we are far outnumbered in manpower resources to wage war against a potential enemy, it is only fitting and proper that we produce superior weapons and equipment which will give us greater firepower, and mobility. This is necessary in order to offset the manpower strength which we are likely to face should the emergency arise. The essentiality of producing more firepower per man is well recognized and is in consonance with our national objective of over-all utilization of our total manpower resources to achieve maximum productivity.

Keeping this objective in mind and fully realizing that our research and development activities are constantly striving to improve these aims to conserve manpower and increase the effectiveness of the individual through better weapons and equipment, there is one disturbing element which, it is suspected, has not been put in its proper perspective with the other essential points. In plain language—are the demands for persons of high skill potential exceeding the resources of such personnel which will be available in any mobilization manpower pool? To put it in the everyday vernacular—is our equipment too complex for the available user? If such is the case we are faced with the problem of putting highly complex and expensive equipment into the hands of personnel with extremely limited capabilities. This situation will reduce in proportion the effectiveness of such equipment to the degree of competence of the persons into whose hands such equipment and weapons are entrusted.

The result of this possibility will, of necessity, dictate certain corrective actions if we are to derive the maximum benefits from the superior equipment being produced. These corrective steps are:

1. Increase training lead time to compensate for the lack of learning ability of personnel.

2. Acceptance of greatly lower performance standard of equipment and weapons.

3. Breaking the skills down into simpler component parts.

4. Concentrating on maximum simplicity of design, to include operation and maintenance, of our equipment and weapons.

Discussing these alternative solutions in turn; first, it would appear that increasing training time under emergency conditions is hardly an acceptable answer in view of rapid build-up requirements in any future war. We read and hear so much about having a ready force for retaliation that we would unlikely have sufficient trained personnel available to conduct a longer expanded training period. Secondly, to accept a lower performance standard for the weapons and equipment would negate the very purpose for which the highly efficient weapons and equipment are designed. In addition this would increase disproportionately the repair and loss of this equipment due to improper handling and maintenance. It is believed that this would be false economy, not to mention the increase in loss of lives so vital to the American way. Eliminating these first two solutions as unsound, it would appear that the latter two are most important and must be correlated to achieve the desired results. In other words, the equipment design must be correlated with the capability of the available manpower pool under mobilization conditions. We must realistically assess, by mental and physical capability, the expected intake into the Army of personnel under these emergency conditions. Currently, for example, only about 10% of our total intake is in the upper mental bracket. Further, of that 10% many are not physically in the top bracket. The vieing of the other services, as well as essential war industries, for the highly skilled becomes an added factor to be considered. Since the upper group is so limited we must then correlate our requirements for personnel with such high mental and physical ability with the weapons and equipment which demand their skills on a priority basis. Realizing that this limited group will be distributed pretty thin, it will be necessary in all equipment and weapon design to consider during the blueprint stage the expected capabilities of the user and the maintainer.

For many pieces of equipment this will undoubtedly mean great stress on simplicity, the elimination of all but essential equipment, and a reversal of the trend towards over-complexity. During World War II, many of us remember what the influx of unskilled personnel did to the efficiency, morale and esprit after we had exhausted the pool of more capable persons. With all our present equipment now available more complex than that utilized during the last war the lack of untrained available personnel could have disastrous effects. Thus, the trend towards maximum simplicity is a must.

In no wise is this intended to criticize the potential manpower of our nation. It is rather an intent to provoke some thought to match up the equipment with the man behind the gun. Not only the gunner must be considered but the maintainer.

For those interested in mobile warfare it is an effort to assure ourselves that we are not priced off the battlefield due to the keen competition for the services of the individuals who are highly skilled. It is therefore imperative that we, in Armor, design our equipment so that we can utilize it to the maximum with the personnel available.

Yes—The man behind the equipment is an important factor to consider.

by RICHARD M. OGORKIEWICZ

CARDED

BRITISH TANK POLICIES

An insight into history of British tank policies should prove of value to U. S. Armor personnel. It should be of special interest to those in Europe who have occasion to work with British Armor assigned to NATO.

British Information Services

British infantrymen moving up on the Western Desert in the early days of World War II. They are well protected by a smoke screen and Matilda 40mm gun tanks.

TWO articles published in ARMOR during 1953* referred at some length to the development of British armored forces and the policies which governed them. In the process, and in dealing with armor in general, both articles gave much support to the pre-World War II concept of dividing tanks into two separate categories of "infantry" and "cavalry" tanks—an outdated concept which proved itself decidedly harmful to the development of British armor.

For this reason alone the articles would call for comment. They also contradicted what one of the authors, General Fuller, has written on earlier occasions and, moreover, they perpetuate some of the confusion which has arisen in connection with the existence of several types of tanks and the concept of the two separate, specialized categories of tanks for specialized roles.

Classification of Tanks

The question of tank types and categories needs very careful attention. It is not only a cause of much of the confusion which has arisen about British tanks but is very nearly the crux of the whole matter, for with it are bound most of the theories and concepts.

In general there have been two methods of classifying tanks. One subdivides tanks according to their technical characteristics. It implies that all tanks are basically the same but, since the whole range of characteristics—armament, mobility, size and so on—cannot be combined in a single model on account of technical limitations, that they differ from one another in degree. Thus, there are light tanks, medium tanks and heavy tanks. A familiar and sound classification which has prevailed in the past and which is in use today.

The other method adopts another standard of classification. Arbitrarily it divides tanks into two separate categories according to the traditional division of ground troops into infantry and cavalry.

So far as the more distant past is concerned this division often was backed by existing technical and tactical conditions. But as far as the more immediate past is concerned it was mainly due to the reactionary attitude of the established arms. These

British Information Services
The British employed U. S. Stuarts during the long drive toward Tunisia.

British Information Services
British Churchills were known as heavy infantry tanks. Mounting a 6-pounder gun, they had formidable firepower. They are shown here prior to a problem.

viewed the tank solely from their angle, as a means of serving their own particular ends, rather than as a general means of battlefield mobility, and in a way which, of course, had to fit the dogmas of the pre-automotive era.

In the tank field the division into two categories came into being in most armies in the decade preceding World War II, when it was largely swept aside by more progressive and successful ideas. Except in Britain; there it grew in one of its most extreme forms and persisted until the end of the war with deplorable consequences, as far as British tank development was concerned, in the shape of the two categories of "infantry" and "cruiser" tanks.

Early Ideas

How this division developed is worth noting. It did not, as might be concluded from General Fuller's article, appear immediately. The first tanks were just tanks. There was no question of dividing them into any separate "infantry" and "cavalry" categories. They were a new means of ground warfare—"landships" as they were first called.

One of the very first treatises on armored warfare, by General Martel—who has since become the chief advocate of the division into two categories—made no suggestion that tanks ought to be split up to comply with the existing functions of cavalry and infantry. It visualised several types of vehicles but within the framework of one homogeneous "tank army." General Fuller's claim that "this conception (of a homogeneous tank force instead of one made up of two categories) was quite unknown to the original tank designers" requires some qualification, at least.

Later, it is true, when lighter and faster types of tanks were built, there arose the idea that they should be used in cooperation with cavalry. And since the original tanks were chiefly used in support of the infantry there came into being the two broad classes: one consisting of heavy, slow assault tanks to be used in conjunction with the infantry, and the other of faster, light and medium tanks to be used with or in place of the cavalry.

It may or it may not have been a good solution at the time. But there was certainly nothing sacred about it. There was nothing which would necessitate this particular state of affairs staying permanently as something unalterable.

Indeed, at the end of World War I, General Fuller himself held the view that the heavier and more powerful medium tank should be used for the "cavalry role" and a lighter fast vehicle be used to support the infantry. "As regards the infantry tank," he wrote in his memoirs, "though the infantry move slowly, this did not mean that the infantry tank should be a slow machine; far from it, for it should be a speedy machine. . . ."

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British Lead

As it was, neither of the two types which he favored was proceeded with, mainly for financial reasons. Instead the Royal Tank Corps was equipped with a single type of fast medium tank, the well known Vickers Medium.

With this vehicle, which at the time of its introduction was well ahead in performance, British armor pioneers blazed the trail which led to new methods of ground warfare. The experiments carried out on Salisbury Plain in the late 'twenties and British writings on subject of armor also served as an incentive and example to developments which followed in several countries.

In all the new theories and experiments tanks were to be the basis of a new type of mechanized army. There was no intention of dividing them and holding back a portion to suit the slower infantry methods. In fact some of the more ardent tank enthusiasts went as far as to claim that infantry could be largely dispensed with in the not too distant future. General Fuller was one of them. In his "Lectures on F.R.S. III," first published in 1932 and later reprinted as "Armored Warfare," he assigned to the infantry a very secondary role.

The new ideas on mechanized warfare, however, met with little support and much opposition from the conservative minded majority of the Army. The opposition may not have been rendered more amenable to reason by some of the more extravagant claims made for tanks; in part it provoked some of these claims. But it continued as a major obstacle to progress.

To get round it something in the nature of a compromise solution was evolved, based on the traditional concept of the division into cavalry and infantry. With its introduction into the tank field the hitherto homogeneous Royal Tank Corps was split up. One part was effectively subordinated to the infantry, which satisfied the older arm's demand for control of at least a part of the tank force. The other part was destined to take over the mobile role previously performed by horse cavalry.

"Cruiser" and "Infantry" Tanks

The part of the tank forces which was assigned to the mobile role and as a replacement of horse cavalry automatically had to assume many of the functions previously performed by that arm. This gave full scope to the development of mobility but also restricted the objectives of the mechanized forces to the limited roles of exploitation, reconnaissance and raiding—the roles to which cavalry was reduced during the late 19th and early 20th centuries.

Coupled with this went a contemporary, peacetime preoccupation with strategic mobility, sometimes at the expense of tactical considerations. As a result less emphasis was placed on fighting power than on mobility, which was regarded as more important and at times almost as an end in itself.

Out of all this came the concept of armored formations "designed for exploitation," formations which were highly mobile but whose fighting power was limited. With it, also, came the concept of the "cruiser" tanks, with which British armored divisions came to be equipped. These were tanks similar in size to the medium tanks of other armies but whose principal characteristic was mobility—even at the expense of fighting power.

British Information Services

The British Comet was employed principally in the drives across France and Belgium. It mounted a 77mm gun, was considered faster than the Churchill tank.

The rest of the tanks were assigned to supporting the infantry, subordinate to the needs of that arm. In other words tank units were not allowed to develop fully their potentialities but were tied down to the slower methods and mental ways of that arm.

From this came the specialized Army Tank Brigades consisting of "infantry" tanks, whose role was the very limited one of "leading the infantry assault," ambling in front of the infantry as a sort of combination shield and steam roller.

For this role the "infantry" tanks were to be first and foremost heavily armored, to the detriment not only of their speed but also their armament. In fact, with the exception of a single experimental model, no British "infantry" tank was ever better armed than a contemporary "cruiser" tank. The "infantry" tanks definitely differed therefore from the heavy tanks of other armies—although similar in weight—since the latter were always more powerfully armed and not merely better armored than the basic medium tanks.

Thus, so far as tanks were concerned, the result of the division of armor into two separate, narrowly specialized categories was the creation of one class of tanks which concentrated on mobility and another which concentrated on the negative characteristic of armor protection. In neither case was comparable attention given to the question of armament which is the tank's first and most important characteristic.

Limitations of the "Cavalry Role" Concept

Various arguments have been put forward in support of the limited "cavalry role" concept of armored forces. Many arguments have been purely traditional, without any regard for the altered conditions of the automotive age. Others have argued that the "cavalry role" concept was justified, not only as a means of overcoming the original opposition to the development of armor, but that anything more—*i.e.,* a versatile armored fighting force—was clearly impossible since the introduction of armor to replace horse cavalry was as much as the great majority of people were prepared to admit.

As such the concept may have had its justification. But it should never have been forgotten that it channelled the development of armor into a restricted field and that it was only the result of a temporary compromise solution and not any fundamental need.

Yet it was often erroneously taken as a fundamental need. Thus, when the subject of the division of tanks was first broached in the official *Mechanized and Armoured Forces* Manual of 1929, ground troops were divided into two categories: combat troops (infantry and its supporting tanks) and mobile troops (horse cavalry and mobile tanks). This sort of thing has often been repeated but what it really means, taken literally, is a ridiculous argument that mobility and fighting power are incompatible! Or, to put it plainly, that combat troops can not be mobile and that mobile troops are not fighting troops!

Such a state of affairs was partly true in the 19th and early 20th centuries, when horse cavalry—the only mobile force of that period—was reduced to impotence by technological developments. But it was not true at earlier periods of history, where the cavalry was often the principal and decisive combat arm, and it was a fallacy to apply the argument to tanks.

For those reasons the concept of the restricted "cavalry role" for armored forces should have been scrapped as soon as possible. Unfortunately the opposite was the case. It was retained far too long, far beyond any initial usefulness it may have had. Though no longer part of official British policy, it still plagues the development of armored forces by the legacy of ideas which it left behind it. Ideas which deliberately restrict the scope and characteristics of armored forces and which thus hamper the development of a new type of effective and versatile armored formations.

"Hobbled" Tanks

Whatever might be said for or against the "cavalry role" concept, there can be no doubt that the creation in the 'thirties of a specialized category of "infantry" tanks was a harmful and retrograde step.

None other than General Fuller criticized this move of tying tanks to the infantry since, as he put it, they were thus "hobbled."

They were indeed tied up to the slow infantry methods and given little chance to develop fully their potentialities. It is surprising that General Fuller should now apparently change his view, for any objective analysis of British tank development before and during World War II shows clearly the deplorable effects of the "infantry" tank concept.

The original infantry tank, the Mark I (A.11), was poor, to say the least. It was as agile as a snail and for all its eleven tons it was armed only with a single machine gun—it was definitely not worth the effort which it cost. The Mark II, or Matilda, was better in that it had a gun with which it could defend itself at least against enemy tanks. But unlike the heavy tanks in other armies—French, German and Russian—which at that time had guns of no less than 75mm, the 30 ton Matilda had only a 40mm gun firing solid shot. This and the reliance mainly on armor protection due to the "infantry" tank concept seriously reduced its usefulness and once the delusion of invulnerability was shattered the vehicle rapidly became obsolete.

As the war went on the relative situation deteriorated further. The next type of "infantry" tank, the Churchill, was larger and heavier but still only armed with a 40mm gun and it was consistently outclassed by its contemporaries in spite of having armor as thick as any of them.

For instance, when the Churchill was being developed in its original 40mm gun form, in the United States at the time Ordnance people were building the M6 with a high velocity 3 in. gun. And in Russia the K.V.I with a medium velocity 76.2mm gun and the K.V.II with a 152mm howitzer were already being introduced into service. The inadequacy of its armament was soon realized and toward the end of 1942 Churchill I and II were replaced by Churchill III and IV armed with 57mm guns. By then the Germans had introduced their Tiger I with its famous 88mm gun and the Russians followed quickly with the K.V.85 with a high velocity 85mm gun. Yet another step in armor and armament and Churchill VII with a medium velocity 75mm gun appeared in the spring of 1944. Its contemporaries were the Stalin with its 122mm gun and the Tiger II with its very high velocity 88mm gun!

So much for what General Martel describes as "the best heavy tanks possessed by any nation at that time!"

The position regarding "cruiser" tanks was not much better. As the chief advocate of the two categories of "infantry" and "cruiser" tanks General Martel naturally tries to present the situation in the best possible light. Unfortunately, the situation was very far from satisfactory, as shown by the above facts relating to the "infantry" tanks. As for the argument that the under-gunned "cruiser" tanks were vindicated by the outcome of the mobile operations following the Normandy breakout, it is necessary to point out that by that time there were some 2,000 Allied tanks on the British front against barely 200 German ones. And that, in any case, the outcome of a campaign is no proof of the qualities of any one particular type of tank.

Improvements in the Tank Situation

However, toward the end of the war the tank situation began to show signs of genuine improvement.

The improvement was initially partly due to Field Marshal Montgomery, of whom Generals Martel and Fuller are so critical at times. It was Field Marshal Montgomery who insisted on the abolition of the unsatisfactory categories of "infantry" and "cruiser" tanks. In their place, having had experience with the then very successful U.S. Medium M4,

Wide World

The Centurion was first released in 1950. It weighs approximately 52 tons and mounts a 20-pounder gun and a 7.92mm Besa machine gun. It has a stabilizer.

he demanded one basic type of fighting vehicle, which he called a "capital" tank.

But this and similar ideas did not show effect until the immediate postwar period. Then they resulted in two very important changes in official British tank policies. First and most important, the unsatisfactory division into the two separate categories of "infantry" and "cruiser" tanks, and into the separate categories of armored units, was abolished. Secondly, tank armament began to be recognized at long last as the tanks' principal characteristic and British armored units began to be equipped with an adequately armed basic type of tank—the Centurion.

Regarding this particular tank itself, there had been at first a certain amount of confusion. For a time it was the only tank in production for the Royal Armoured Corps and was sometimes described as a "universal" tank. It was a "universal," or "general purpose" tank in the sense that it replaced the previous two categories of "infantry" and "cruiser" tanks. But it was no more "universal" than the medium tanks in the U.S. Army, or the U.S. Medium M4 as it was used by the British Army in 1943-44 (when no battle-worthy British tanks were available) both in cooperation with the infantry and in the armored divisions.

The position of the Centurion has since been clarified by its designation as a "medium gun tank" and the introduction of the Conqueror heavy gun tank. There are now, therefore, these two types of tanks as well as a third, light gun or reconnaissance tank. But their existence has nothing to do with the earlier "cruiser" and "infantry" tank concepts; contrary to statements by its supporters, the appearance of the Conqueror heavy gun tank does not mean a return to the concept which had been so deplorable in its results.

Policies and Their Effects

The present British system of having a single category of armored units equipped with as many types of vehicles as are technologically necessary is no different from the policies adopted earlier by other armies. The basic equipment of armored units is the medium-gun Centurion and this is backed by the less numerous but more powerful heavy gun tank, intended particularly for combating hostile armor. Far from being restricted to "leading the infantry assault," as the former "infantry" tanks were, the heavy gun tank is to be incorporated within the framework of armored formations together with the medium gun tank. In other words, its position is similar to that of heavy tanks in the German Panzer divisions and in Soviet armored formations and also in the post-World War II U.S. armored divisions.

The inclusion of heavy gun tanks in British armored divisions means even more than that these tanks are not regarded solely as a specialized category for infantry support. It means that armored divisions are no longer looked upon solely from the point of view of exploitation and strategic mobility. It means that attention is being given to the essential tactical considerations and that, at last, armored divisions are regarded as versatile fighting formations, an attribute which mechanized formations potentially always had and whose development had many of its roots in Britain.

Unfortunately for the British Army the early pioneering efforts in the direction of an effective mechanized army gave way to the concept of the two separate categories of tanks and armored units and this narrow, doctrinaire view prevailed through to the end of World War II. The lead was thereby lost and it was left to the Germans to be the first to demonstrate the full potentialities of armored forces as the decisive arm in ground warfare. Though at first they followed closely British ideas they rejected the "infantry" and "cruiser" tank concept and instead made the most of their tanks by grouping them all in the Panzer divisions.

The latter were well integrated combinations of several arms, including infantry, artillery and combat engineers as well as several tank models, and they represented a new type of modern mechanized forces of *both* greater striking power and greater mobility than the rest of the army. Instead of being a mere mobile supplement of the army, German Panzer divisions were its spearhead, its most effective fighting force and proved as capable of brilliant strategic exploitation as of fighting out for themselves the essential tactical successes.

The doctrine of armored formations as the decisive element in ground warfare was also accepted when the U.S. Armored Force was created in 1940, and there is no lack of evidence of the importance which the Soviet Army attaches to its armored formations.

British armored forces have now also been accorded an equally important position, which they rightly deserve. Nothing could be more harmful to their future—or that of any other armored force—than a return to the outdated concept of the two separate categories of "infantry" and "cruiser" tanks.

Fortunately there are no signs that this concept is coming back, in spite of the claims of Generals Martel and Fuller. Past experience shows clearly its defects:

1. the general lack of flexibility resulting from the existence of the two separate, parallel, narrowly specialized categories of "infantry" and "cruiser" tanks and armored units which went with them,

2. the neglect of the principal characteristic of the tank—its armament—for the sake of the negative attribute of armor protection on one hand and mobility on the other,

3. the failure to recognize that the primary importance of the tank lies in increasing the mobility and effectiveness of the armament which it carries, *i.e.*, that it is a "vehicle to carry fire power," and that its role is basically the same whether it is used in conjunction with infantry, in armored formations, or any other troops,

4. the substitution of dogmatic, traditional ideas of the pre-automotive era in place of opportunities for the armored forces to develop fully their potentialities as the most effective element in ground warfare.

J. F. C. Fuller,

***Warfare and the Future*, ARMOR, Vol. LXII, No. 2. March-April, 1953, p. 42.**

Sir Giffard Martel,

***The Russian Threat*, ARMOR, Vol. LXII, No. 3. May-June, 1953, p. 6.**

Sum & Substance

A regular feature in ARMOR, where you may express your views in approximately 500 choice words—the effective medium between the letter and the article. This section is open to all on any subject within the bounds of propriety. Name and address must accompany all submissions. Name will be withheld upon request. No pseudonyms.

The Armored Combat Training Center (TACTC) at Camp Irwin, California, was assigned the mission of conducting the OCAFF Armor Training Program at Camp Irwin, in October 1953. Under this program, tank battalions from infantry and airborne divisions and provisional battalions formed from the tank companies of infantry divisions and from the light tank crews and tank companies of armored cavalry regiments are sent to Camp Irwin for six weeks of extensive advanced training. The objective is to complete their individual and unit training with the main armament, to familiarize them with the maintenance, operation and employment of the latest tanks, tank components, and special armored equipment, and to enable the training unit to engage in realistic combat firing exercises.

TACTC is commanded by Brigadier General Charles A. Sheldon. He is assisted by a general and special staff. Under his direction, the training policies and programs of OCAFF are developed in the form of training directives which set up the training exercises and activities. By personal observation and supervision, General Sheldon and his staff maintain close daily contact with training operations, seeking constantly to add the maximum amount of realism to the firing exercises consistent with sound safety precautions and practices.

To provide logistical support for the OCAFF Training Program, Camp Irwin has the usual technical services with their supply, maintenance and service activities. In addition there are service units with specific support missions. Among these is the Headquarters and Headquarters Detachment, 2d Ordnance Battalion with the 923d Heavy Automotive Maintenance Company and the 378th Heavy Maintenance Company attached. The former company renders field maintenance support for the wheeled vehicles required in the program; the latter, field maintenance for the M48 Tanks.

Under a provisional Special Troops organization are additional support troops. These include the 53d Transportation Truck Company (Medium) providing the required transportation for hauling personnel and supplies to and from the firing ranges and tactical areas and the 117th Transportation Truck Company (Light), which, in addition to training for Army tests, operates the post transportation motor pool of one hundred and twenty-seven

general transport administrative vehicles. The 1st Army Postal Unit operates the post office and the 93d Army Band provides music for march training, reviews, parades and special ceremonies. Concluding the Special Troops units is the 6019th Service Unit which administers the military personnel for post headquarters, staff sections, and post technical services.

Required medical and dental services are provided at Camp Irwin, California by a twenty-five bed United States Army Hospital and a seven-chair dental clinic.

Working with the military personnel to complete well balanced and efficient teams are approximately three hundred and eighty-five civilian employees.

These support personnel, military and civilian, manning the service sections, units and activities have as their goal, in common with the resident tank battalion, the maximum in training so vital to the strength and effectiveness of our combat forces.

The writer of the following article graduated from the Military Academy in 1943. During World War II he served in the ETO with the 15th Cavalry Reconnaissance Squadron. Subsequent to the War he served with AFF Board No. 2, and as Armor representative with the US Army Standardization Group in England. He is a graduate of the Cavalry School, the Armored School and C&GS. He has commanded the 723d Tank Battalion since July 1954.

The 723d Tank Battalion

The 723rd, formerly the 325th, Tank Battalion is the resident tank battalion at Camp Irwin. The battalion is charged by CG, TACTC, with the actual conduct of the OCAFF Armor Training Program at Irwin. It provides the tanks, wheeled vehicles, special armored equipment, many of the facilities, and all of the instructors, supervisors and operating personnel for each range and classroom used in the program. In addition, the battalion furnishes second echelon maintenance and logistical support for all of the equipment and training areas. It is not, however, responsible for the training schedule, the preparation of instructional material and aids, or the tactics taught.

The schedule and facilities are designed to permit training of two battalion-size units at one time, provided they are phased into the program at proper intervals. The program itself is divided into four general phases. The first phase covers approximately three weeks. It includes classroom and practical work in gunnery, communications, tank maintenance and driving, and range finding. C Company and Headquarters and Service Company are responsible for this vital training of the individual crew member.

The second phase is a transition period intended primarily to perfect the teamwork of the tank crew. B Company is responsible for this aspect of the program.

The third phase is devoted to training the tank platoon. It consists of six representative tactical problems. Four of these problems are operated by A Company. The other two, including a two-platoon night problem, are carried out by B Company.

The finale for each training company is a company problem handled by A Company with an assist from B Company.

Throughout each training cycle, the conduct of the training program and the operation of the firing ranges is handled by the officers and men of the 723rd Tank Battalion, leaving the trainees to concentrate on learning.

Lt. Col. J. G. Wheelock III

On the surface, the mission of the battalion appears to be a thankless one. Actually, this is far from the truth. Virtually every man appreciates that the battalion task is not only unique but vital. Instructors and assistant instructors take pride in their professional knowledge and skill. Others take pride in their ability to keep the tanks, vehicles, equipment and training facilities in constant use.

All are proud of their invariably excellent relations with trainees and of the battalion record for 1954. The latter speaks for itself:

Number of Personnel Trained	2,860 or 12 battalion size units
Number of 90mm Rounds Fired	123,093
Number of Small Arms Rounds Fired	2,352,027
Miles of Tank Operations	58,708
Wheeled Vehicle Passenger Miles	4,815,176
Number of Fatal Accidents	None
Number of Accidents Involving Loss of Duty Time	12

In addition to conducting the OCAFF Training Program, the 723rd Tank Battalion has assisted Reserve and National Guard units, put on various demonstrations, carried out an extensive instructor training program, conducted MOS, POR and mandatory-subjects training, and tested various tank components for both OCAFF and Ordnance.

Lt. Col. J. G. Wheelock III

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The writer of the following article enlisted in 1944 and served in the 5th Infantry Regiment. He was discharged in 1946 and recalled to active duty as a commissioned officer in 1950. Following a tour of duty in Europe he was assigned to the 325th Tank Battalion in July 1953. He is a graduate of the Armored School. He has commanded Headquarters, Headquarters and Service Company, 723d Tank Battalion since March 1954.

Headquarters and Service Company

Headquarters and Service Company has the normal missions of command, supply, administration and maintenance. In addition, we are responsible for the communication and automotive instruction in the OCAFF Training Program and for other extracurricular activities in connection with the program. As a result, the company has almost double the usual amount of signal, automotive and maintenance equipment.

The Communication Course is run by Sfc David L. Wait assisted by four enlisted instructors. The training site is located approximately 22 miles from the post. The main building, which was constructed under government contract, consists of an office and a large classroom seating about 60 men. The principal training aid was made by the instructors and duplicates the communication setup in a tank. Five additional stations, employing ANGRC-8 radios, are arranged along one side of the classroom. A smaller building, built by company personnel, is located nearby. It is renowned for its bright and varied colors and is split into four cubicles, each one housing an AN-VRC-7 radio. Power for both installations is supplied by a Power Unit, PE 95.

Capt. Bruce M. Karr

The course requires 16 hours. It includes familiarization with and maintenance of radio sets and other communication equipment used by Armor, voice operating procedure, operation of a tank platoon net, and an examination.

Experience has disclosed that most tankers are overwhelmed by the complex appearance of their communication equipment. This feeling erects a barrier to learning. As a result, tank crews do not use the equipment properly and do not derive the maximum benefit. This can be countered by forceful instruction and constant practice. The equipment is sound. Most faults are due to operator ignorance. Practice, even if it consists of merely opening and closing the net during motor stables, will pay off.

The Automotive Course is operated by Cpl. Ronald Lang in a classroom, which is similar to the main building on East Range 4 about 18 miles from the post. Here, Lang and two enlisted assistants cover the characteristics, operation and maintenance of the 90mm Gun Tank, M48. Training aids consist of the tank itself, a complete power package, various automotive components, and numerous charts and sketches. This part of the course requires 8 hours and is concluded with a written examination.

Subsequently, the trainees receive instruction in driving and practical maintenance at Buzzard Peak about 17 miles from the post. This four-hour period is supervised by 2nd Lt. Charles McCorkle and the other automotive instructors. They use B Company tanks and facilities and are assisted by enlisted personnel from that unit.

Both the communication and automotive instruction are divided into four-hour blocks to facilitate instruction of two platoons in the morning and two in the afternoon. As a result, a battalion-size unit requires 12 working days to complete the Communication Course and 9 days to finish the Automotive Course. Concurrently, the remainder of the training battalion, which is divided into two-platoon groups, is on East Ranges 1, 2 and 3 and in the range finder classroom with C Company.

In addition to instructing, Hq, Hq & Svc Company directly supports the OCAFF Training Program in various other ways. The Mortar Platoon furnishes fire support on three tactical problems, substituting for artillery. The Battalion Supply Platoon furnishes six ¼-ton trucks and three 2½-ton trucks to each training battalion. To keep these and approximately 75 other wheeled vehicles rolling, company maintenance personnel normally work day and night shifts. In addition, the company operates a carpenter shop, which builds and repairs over 800 targets during each six-week period, and mans a switchboard linking all battalion ranges and training areas. A newly organized Reconnaissance Platoon is being trained to carry out still other missions in connection with the program.

CAPT. BRUCE M. KARR

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The writer of the following article is a 1950 graduate of the Military Academy. He served a three and a half year tour with the 6th Armored Cavalry Regiment in Europe, return-to the States in February 1954. He has been in command of C Company, 723d Tank Battalion since August 1954.

C Company

C Company has the mission of instructing trainees in the operation of the fighting compartment components of the 90mm Gun Tank, M48, and of conducting their sub-caliber and service practice firing. We operate East Ranges 1, 2 and 3, a range finder classroom, and for three days in each cycle, a moving target service range.

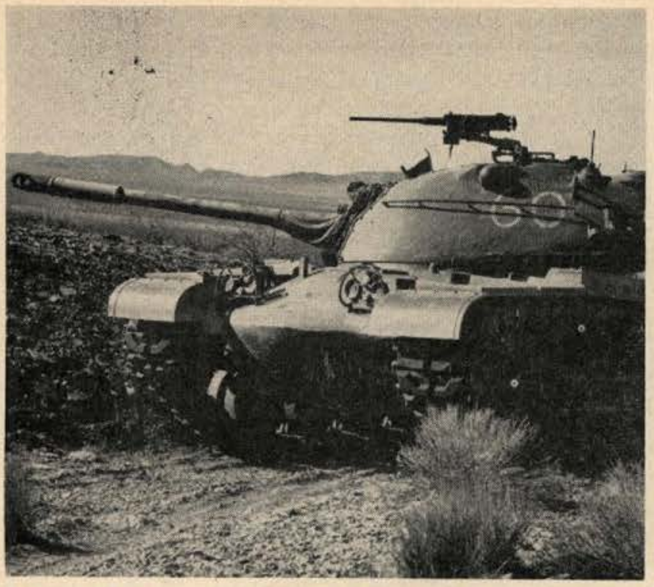
Each battalion-size unit spends approximately 17 working days with C Company. All instruction is handled by company personnel. Classroom conferences and briefings prior to firing are conducted by an officer or a NCO. Individual instruction in the tanks is given by enlisted assistant instructors. Similarly, responsibility for the conduct of firing, range safety and facilities, and scoring rests with the officers and men of this unit. The equipment to operate and support the ranges, including 44 tanks, 1 tank recovery vehicle, 15 wheeled vehicles, 2 trailers, buildings, chairs, training aids, PA systems and generators, is also our responsibility. All tanks are equipped with the phase IV fire control system.

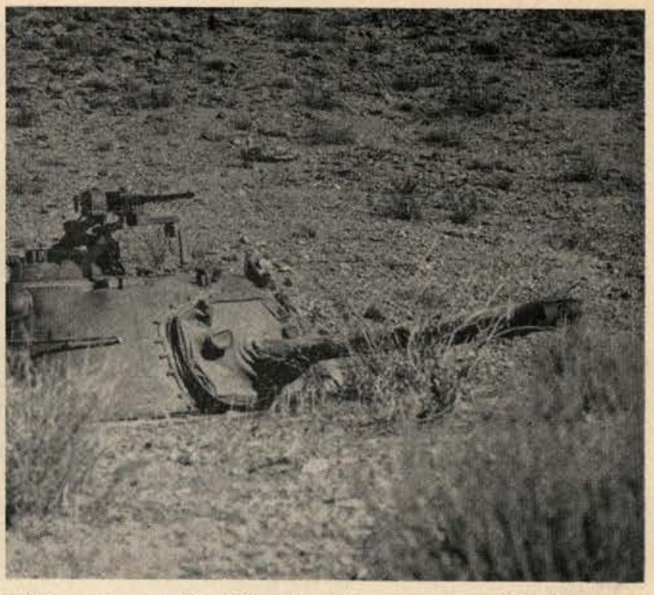
Typical of the ranges is East Range 1. It is operated by the 1st Platoon. Their basic team consists of 2nd Lt. Frank J. Wolff, platoon leader and Officer In Charge, M/Sgt. Nicholas Petock, platoon sergeant and Non-

Camp Irwin, California is 40 miles south of the famous Death Valley. Surrounding this isolated post is the 12 million-year-old Mojave Desert where temperatures range from below freezing to 140 degrees. It is the largest Army tank training center.

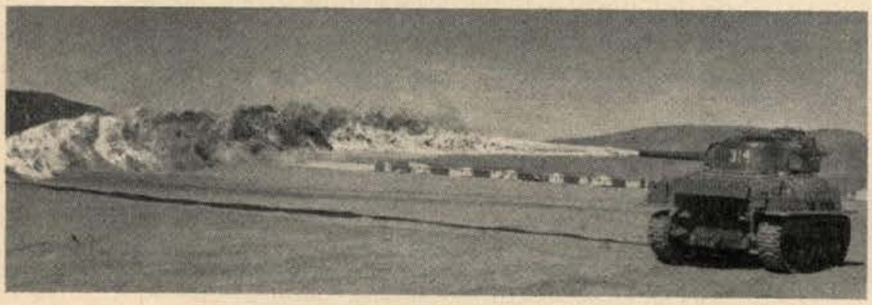
A platoon of M48 medium tanks on the Garlic Springs range. Moving approximately 20 mph in column, they deploy into a "V" or wedge formation and fire on simulated enemy targets with both their sub-machine guns and the 90 millimeter tank guns.

Both by day and night tankers from various Army installations across the nation study and practice advanced Armor tactics. The varying temperatures test the equipment as well as the stamina of the men while they are busily training.





Believe it or not—only the photographer has moved. Still having a clear field of fire for his long range 90 millimeter gun the tank commander has taken advantage of the ground around him. His tank is all but invisible to the "enemy."



Here an M4A1 flamethrowing tank throws its flaming napalm during a demonstration at The Armored Combat Training Center. This modified Sherman can spew this fiery arc 200 yards.

One platoon of a tank company moving up to the LD at Nelson Pass. Behind and to the right are the other two platoons with the mission of moving rapidly over six miles of rugged terrain to their objective while supported by the platoon shown here.

commissioned Officer In Charge; Sgt. Thyrell L. McMillan and Sgt. Donald L. Masters, classroom instructors; ten assistant instructors, an OVM clerk, an office clerk, and two wheeled vehicle drivers. They are supported directly by company automotive and turret mechanics and radio repairmen who operate in the East Range area.

The range includes a control tower, hardtop standing, stationary targets for tables I and IV, a target course and sled for table II, six vehicle lanes for table III, and service target butts and berms at 900, 1200, 1500, 1800, 2100 and 3000 yards. A building similar to that on East Range 4 houses a classroom, office and OVM room. Other buildings built by the company provide shelter for the instructors, trainees and generating equipment and a place to fabricate and store subcaliber targets.

Capt. E. P. Freedman

During the first six days of instruction, such subjects as turret familiarization, main armament, direct fire sights, phase IV computer, range finding, conduct of fire and auxiliary fire control equipment are covered on each range. Instruction is divided into four-hour blocks and is given to two platoons in the morning and two other platoons in the afternoon. The next three days are devoted to a written examination and completion of the four sub-caliber tables. Subsequently, instructor personnel and equipment on one of the three ranges are shifted to the Moving Target Range where one day is spent zeroing and preparing the table VII. Three more days are needed to fire the actual table at the rate of a company a day. In the meantime, the remaining two ranges fire the three service tables and a special table designed to demonstrate the capabilities of the phase IV fire control system.

The Range Finder Course runs concurrently with the Gunnery Course, Corporal William G. Van Velkinburg in charge. The classroom, on East Range 2, houses an office, 11 Range Finders, M12, on stands and 2 Range Finders, T46E1, on stands. Ranging targets are spotted between 500 and 4400 yards from the classroom.

The course requires 21 hours. Two platoons are handled simultaneously. Each trainee receives 5 hours of actual instruction and approximately 2½ hours of ranging practice. Slow students receive extra instruction and practice in a special clinic. The average student makes about 200 rangings. Despite this limited training time, 75% or more of the students are taught to use effectively the T46E1 Range Finder.

CAPT. E. P. FREEDMAN

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The writer of the following article served in the Pacific during World War II with the 41st Infantry Division. He received a battlefield commission in July 1944. Recalled to active duty in 1951 he was assigned to the 2d Armored Division, accompanying that unit to Europe. He has been in command of A Company, 723d Tank Battalion since October 1954.

A Company

A Company has the mission of conducting five tactical firing exercises included in the OCAFF Training Program. To accomplish this mission, the company has forty-eight 99mm Gun M48 Tanks. Twenty-one tanks are equipped with the Phase IV fire control system and are distributed on the various ranges to offer continuous training with this type equipment. Maintenance is performed by the trainees under the supervision of the company range officers and enlisted instructors.

2d Lt. Leland H. Turner and Sfc Ricardo Sanchez conduct the first tactical range encountered by the training platoons. This exercise, appropriately called "Battle Drill," is designed to teach a platoon the mechanics of solving situations frequently encountered in combat. The objectives are speed and coordination without resorting to normal communication facilities. Throughout the entire problem, trainees are required to use flag signals to control both fire and movement.

2d Lt. Francis A. Faltin, assisted by Sfc Charles Pruitt, conducts the "Point of the Advance Guard" problem at Black Hills approximately 9 miles north of the post. In this exercise, the trainees are instructed in the importance of instantaneous action the moment enemy resistance is encountered. Emphasis is placed on speed and accuracy in engaging targets, rapidity of movement, dissemination of information and the fact that positive and immediate action generally succeeds against a superior force.

Capt. Bert O. Osen

The "Delaying Action" problem at Nelson Pass, 12 miles north of the post, is conducted by 2d Lt. Richard B. Cohen and Sfc William J. Reed. Trainees are instructed in the importance of accurate, long range firing, selection of successive delaying positions and retention of control to insure timely engagement and disengagement.

The final tactical exercise for a platoon is conducted by 2d Lt. Donald H. Lyon and Sfc Oscar E. Vermilyea. This problem is termed "Tank Versus Tank" and is located 8 miles south of the post. It strives to teach all of the basic principles of armored combat. This operation develops highly coordinated tank crews and platoons. The tactical situation involves a tank platoon with the mission of seizing a prominent terrain feature defended by a heavy section of tanks. During this exercise, each tank fires the caliber .30 co-axial machine gun, using tracer ammunition, to represent the main armament. Hits are indicated when an assistant instructor in the tank releases a red smoke grenade attached to the exterior of the turret. The problem is run once a day for six days each cycle. Extra trainee crewmen observe the problem and monitor the radio transmissions of both forces from an OP.

The training unit completes its training at Camp Irwin with a "Company Problem" at Nelson Pass. In this problem, a tank company attacks to seize a prominent terrain feature. Emphasis is placed on rapid movement, fire distribution, control and coordination. During the attack, the training unit commander must coordinate the fires of the battalion mortar platoon and the supporting platoons. The trainees are also given the opportunity to fire on targets at ranges greater than 5000 yards. The problem runs once a day for three days each cycle. Four officers and 17 assistant instructors are required to control it.

All problems or exercises, except the "Tank Versus Tank," and the "Company Problem," are run twice a day, six days each cycle. Two platoons report and receive instruction in a makeshift classroom on a terrain board for approximately one hour. Subsequently, one platoon is given a combat order and a time to move out. While it is preparing and executing the problem, the other platoon readys ammunition and then maintains and prepares the tanks to be used in their problem. The second problem is usually run after the noon meal.

OVM and other equipment are stored in a building constructed by the range personnel. Trainees are required to draw and install the equipment, carry out pre-operation checks, and load ammunition. All trainee tasks are performed under the direct supervision of assistant instructors who are held responsible for the condition of their tank, the proper adjustment of radio sets and weapons, and the securing of ammunition in racks. Upon completion of the exercises, a critique is held and after-operation maintenance is performed. Again, range personnel are responsible for the results of the training unit's maintenance. As a result, they are continually on the job, advising, supervising and checking.

It should be noted that trainee leaders are in complete control of their units at all times. However, an officer in charge accompanies the unit in a ¼-ton truck with a radio. He sets up the prescribed situations for the trainee platoon leader to solve and enforces safety regulations. He also represents supporting and higher units on the radio. An assistant instructor is placed on each tank, except at "Tank Versus Tank." He supervises and assists the crew, inspects weapons when they are cleared, and watches for safety violations. Nevertheless the trainee commander determines the solution to the problem.

Capt. Bert O. Osen

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The writer of the following article graduated from the Military Academy in 1950. He served a three and a half-year tour of duty in Europe with the 2d Armored Cavalry Regiment, returning to the States in February 1954. He has been in command of B Company, 723d Tank Battalion since August 1954.

B Company

B Company supports the OCAFF Training Program by operating three types of ranges: transition, demonstration, and tactical. The company has thirty-four 90mm Gun Tanks, M48, of which 16 are phase IV type, to conduct this training. These tanks are situated on the various ranges and are used during each training cycle. In addition to the gun tanks, the company also has four M4 Flamethrower Tanks which are employed to demonstrate their capabilities. They are serviced and operated by enlisted men under Sgt. Fordi W. Cline and Cpl. Kenneth Rose. Maintenance of tanks and equipment is performed by the trainees under the supervision of the range personnel who remain responsible for its condition. This method has proved very effective with the daily average deadline less than ten per cent.

"Crew Coordination" is the first transition range encountered by the trainees and is operated by Sfc Ernest H. Short. This range bridges the gap between the gunnery qualification ranges and individual crew proficiency. It is a non-firing type crew proficiency course. As the platoons go through this exercise the tank crews are welded into fighting teams.

2d Lt. Ralph S. Howard III, assisted by Sgt. Stanley R. Zell, conducts the "Crew Proficiency," which is similar to the course at Fort Knox. Here the crews deal with ten different situations using live ammunition and firing all organic tank weapons. Intercommunication among the tank crew is monitored by the OIC.

Capt. V. S. Brown, Jr.

"Combat Gunnery" is conducted by 2d Lt. Donald B. Parr and Sfc Gary L. Vernon. It is designed to develop the teamwork of a tank section. The principles of fire and maneuver, moving by bounds, and mutual support are effectively demonstrated to trainees who have to solve six different situations.

2d Lt. Stanley J. Mickunas and Sfc Troy L. Lindley, Jr. conduct the only tactical range operated by B Company. This exercise, "Tank-Infantry Team in the Attack of a Defended Terrain Feature," enables the entire platoon to fire all organic tank weapons. It takes place at Red Pass which is 25 miles northeast of the post. The platoon maneuvers against an assumed enemy on three successive objectives. During this exercise, the platoon leader is required to employ the supporting fire of the battalion mortar platoon and to coordinate with a platoon of simulated infantry. When the final objective has been secured, the platoon is required to consolidate and establish a defense. Subsequently, the platoon sustains a counterattack and is forced to withdraw to an intermediate objective.

A night problem follows the day exercise at Red Pass. It is conducted by Lt. Mickunas and Sfc Paul R. Tyrrell. This problem requires two platoons of tanks, the battalion mortar platoon, two searchlights and a simulated infantry platoon. One tank platoon is designated as the base of fire. It is required to make range cards in the afternoon and fire from that data at night. During the exercise, the base of fire places fire on the first of two objectives before the assault force launches its attack. As the assaulting platoon attacks, the support platoon shifts to the second prearranged concentration. This exercise effectively demonstrates the problems of a night attack and the value of illumination from both searchlights and mortar illuminating shells.

The daylight exercise is run twice a day for six days during each cycle. The night problem is run only once in a 24-hour period.

Each training day all of the ranges are opened with a short period of instruction on the principles involved, the problems to be solved, and the pertinent control and safety precautions. Instruction, control and administration of each range is the responsibility of the B Company platoon leader assigned to it. He has the men of his own platoon to assist him. They grade the performance of the crew, aid the crew when necessary, and enforce safety regulations. On all ranges, the assistant instructors ride on the tanks. At Red Pass, the officer-in-charge accompanies the maneuvering platoon in a ¼-ton truck with radio. At Dry Gulch, however, the two OICs operate from control stations overlooking the training sites.

CAPT. V. S. BROWN, JR.

The Staff of the 723d Tank Battalion

The staff of the 723d Tank Battalion is responsible not only for the normal staff functions but also for directing and supervising the battalion's logistical, maintenance and instructional support for the OCAFF Training Program.

More time and effort than usual is required to process and coordinate administrative and functional matters pertaining to the battalion and its widespread activities. For example, maintenance, maintenance support and tank availability are a continuing concern. A complex report showing the status and location of each of the 130 tanks is prepared daily. It is used to assign priorities for the issuance of critical parts and for repair work, to shift tanks, and to determine trends. Providing the second echelon and supervising the first echelon maintenance for these tanks and 185 wheeled vehicles and trailers, all of which are in constant use, necessitates a continuous, all-out effort. Fortunately, battalion maintenance personnel are reinforced, when available, by mechanics from the training units. Arranging for and coordinating maintenance checks and the replacement of gun tubes alone requires advance planning and careful supervision in order not to interfere with operations. For instance, 81 gun tubes were changed while the program was in progress between April and November 1954.

Assignment of personnel is another ever-present task. The requirements of the four companies differ widely by reason of their missions. Not every replacement is capable of being a tank crewman, let alone an instructor or assistant instructor. Personnel are neither stabilized nor specially selected. In the past year the battalion lost 1060 men while gaining 1380. Many have had only infantry training prior to reporting. During the peak of the program recently, the noncommissioned officer strength in the first three grades was only 26% of the authorized allowance. The majority were sergeants. Below the first three grades, the battalion was 103% over strength. At the same time, the number of officers present for duty averaged 29, including a chaplain and a MSC officer.

Training of battalion personnel is another never ending problem. Preparation of the program and schedules is far from simple. Training must be carried out piecemeal and coordinated with each unit's mission. Instruction for POR, MOS and mandatory-subjects is run continuously. Constant attention is given to readying instructors.

Supply poses still other difficulties. The battalion is authorized nearly twice the usual amount of equipment. Some, such as flamethrowers, flame service units, generators, electric lighting equipment and searchlights, are special items. However, additional supply personnel are not provided. Each range operates a supply room which issues equipment not only to range personnel but also to trainees. In addition, the turn-over of both non-expendable and expendable items is tremendous because of the rough and continuous usage. For example, 44 machine guns and 140 barrels were replaced between 1 August and 1 December 1954. The supplying of rags, cleaning materials, fuels and lubricants alone is an operation of considerable magnitude. Approximately 1300 gallons of gas are delivered daily to the tanks on the ranges by battalion fuel tankers during the program. Delivery must be coordinated so as not to interfere with training. About 8500 gallons alone are needed to move all tanks from the training areas to the motor pool. The supply of ammunition, such as ground signals, mortar shells, smoke grenades and explosives, used by range personnel to support training is still another task requiring considerable time.

A radio net operated and maintained by the battalion covers roughly 300 square miles, linking battalion headquarters to all training areas. 49 frequencies are used. Fixed radio stations are located in headquarters, the communication building, East Range 2 and one company orderly room. The net opens automatically at 0615 hours and remains open until the last range closes. A wire net also connects all ranges and the post. The range switchboard is operated by the battalion. Lines are maintained by post. Local lines are established on ranges and throughout the battalion area to supplement post facilities. The battalion uses 283 radios.

Other activities of staff officers during the past months include conducting tests of rubber versus steel chevron tracks and of the phase IV fire control system. The latter required the full time service of one officer and the assistance of both turret mechanics and range personnel.

FROM THESE PAGES

65 Years Ago

The commander of a regiment is a great personage: "He drives, but does not drag the coach." He acts in everything by intermediary; through the battalion commanders and adjutants in matters of personnel and instruction; through the major in questions of accountability and administration; and through the surgeon in matters of hygiene.

He is at the head of the regiment; the father of the family; the most zealous supporter of good fellowship, of love of the trade, of respect for that profession, in which man is called upon to make the supreme sacrifice on the altar of his country.

* * *

If he requires anything new, he should himself show how it is to be done.

His influence is felt in the companies through the intermediaries, the battalion commanders, but he never usurps their roles; and very much less does he ever take upon himself the functions of the company commanders.

The chiefs of battalion are the immediate auxiliaries of the colonel, to control the punctual performance, in the companies, of duties which he prescribes, and of all the regulations and instructions; if there is anything wrong, it is upon them that his wrath should fall.

In their turn, the battalion commanders hold the company commanders responsible.

To pass over the heads of battalion commanders, in commanding a regiment, is a serious blunder. This fault is born of the fact that in peace it seems possible to do it without inconvenience.

In peace, perhaps it is; but in war, No. And then it is too late to expect from these battalion commanders, the initiative, the sense of responsibility, that we neglect to develop in time of peace.

The Colonel

General Dragomirov
Revue du Cercle Militaire

25 Years Ago

Reorganization seems to be the order of the day. It is submitted that any reorganization should be accepted solely for the purpose of increasing battle mobility. Battle mobility is the only logical object for any organizational study. It is all-encompassing, and is the essence of successful combat. It embraces fire power, movement, supply, security, mental processes, and all other phases of battle. Any attempt to set-up numerous requirements for reorganization is certain to invite confusion, the introduction of useless equipment, formations and methods, and the adoption of complex and unwieldy organizations. In the last analysis, it is simply the question: Will or will not this gun, this type of transportation, this method of supply, reconnaissance or security, this formation, this system of cooperation or coordination, etc., increase our battle mobility?

Tank Reorganization

Major Sereno E. Brett

50 Years Ago

The custom which is quite universal at this post, of officers saluting each other as they pass, has been observed with much pleasure. It may seem queer that a thing which has always been required by the spirit of orders and regulations should be mentioned as an agreeable custom, but during a very considerable length of service I have never seen this custom so universally observed as it is in this post at the present time. I belonged to the army nearly twenty years before I ever saw two officers salute each other, except when they were not on speaking terms.

The habit of saluting is military, and when officers practice it very generally among themselves soldiers will cease to consider it demeaning, and practice it more cheerfully.

Suggestions to Young Officers

General Bell

10 Years Ago

The fundamental unit of strategic maneuver is the army. To control and direct the campaign, to allot major combat elements from corps to corps for the accomplishment of assigned missions, and to employ supporting and reserve troops effectively, *the army commander must have current and continuous information from the front line elements.*

A system that will bring this information with both speed and accuracy is a vital adjunct to a highly fluid and mobile campaign. In Sicily, where such reports were often late and inaccurate, it was found that it was necessary to know the location of all troops at all times.

* * *

No criticism is meant or implied of the normal system of signal communications or of such information passing through the chain of command. Delay is part and parcel of the system—but for an army with ambitions to go places fast, it simply will not do.

Third Army Reconnaissance

Capt. Robert W. Williams
as Told to
Lieut. Lyman C. Anderson

CARDED

Surprise Targets

by LT. COL. EDWARD E. CRUISE

COMBAT practice firing is the concluding phase in the training of small units. It is the most important phase for it integrates all previous training, stresses individual coordination and teamwork, cooperation between units, fire discipline, fire control and tactical movement. Conducted as tactical proficiency tests, combat practice firing problems are essential to the final verdict of "combat ready." The proper testing of small units must be completed before they undertake field training as elements of larger units. Faulty tactics and technique and inadequate gunnery training must be discovered and corrected before they become bad habits which must be paid for in excessive casualties and lost missions.

There are many difficulties involved in the preparation and conduct of realistic and flexible combat firing problems. Where small units, employing only small caliber (or subcaliber) direct fire weapons are involved, the problem is relatively simple, as targets may be operated from pits or other shelters. But where supporting weapons, such as mortars, recoilless rifles, tank guns and artillery are used, it is much more difficult. In these circumstances it has been customary to erect silhouettes and panel targets to represent hostile weapons and personnel, prior to conducting the problem.

Such a solution is unrealistic, ineffective and dangerous. It results in stereotyped exercises with units firing and maneuvering against obvious targets which can usually be seen by participants prior to the problem. The capability of engaging surprise targets rapidly and effectively cannot be measured. Placing supporting fires on targets and the massing of fires on call cannot be effectively checked. Since there is no control over the targets, units may by-pass them and suddenly engage them from an angle which will cause shots to strike beyond safety limits.

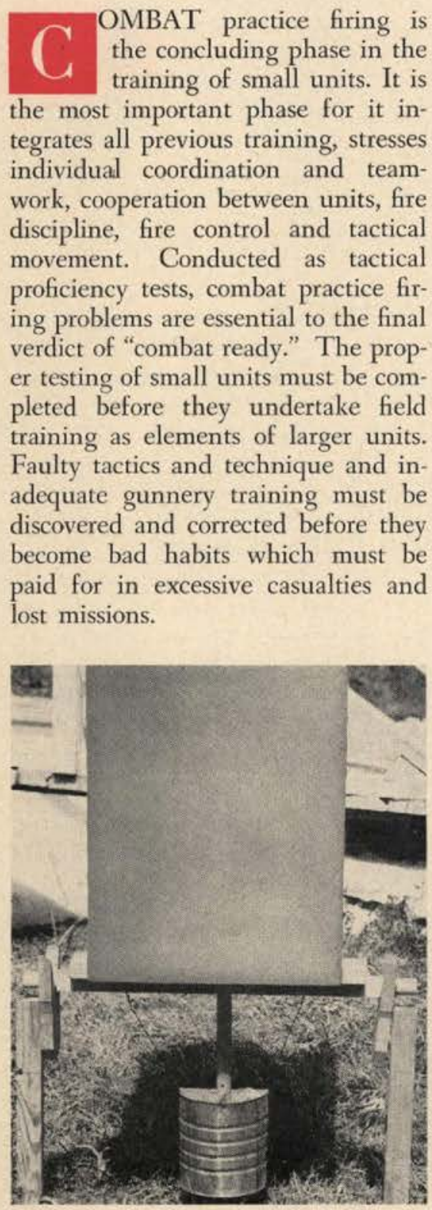
U. S. Army

Figure 1.

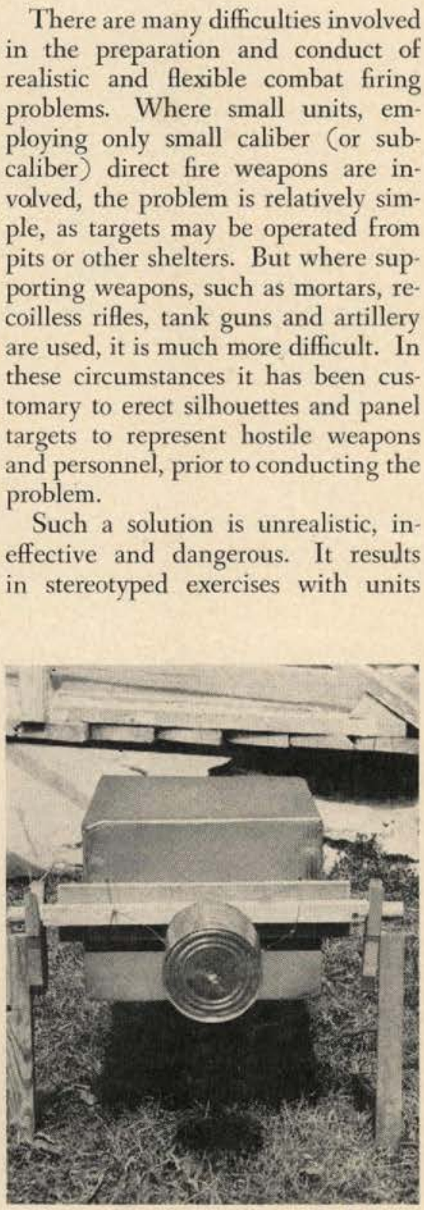
U. S. Army

Figure 2.

By use of a simple jump-up target, controlled by electrical means, the effectiveness of combat firing problems can be greatly increased. This type of target is illustrated in *Figure 1*. This consists of a heavy cardboard carton mounted securely to a board under which is attached a can as a counterweight to hold the carton or target vertical. The operation of the target is very simple. The carton is pulled down to a horizontal concealed position, *Figure 2*, and fastened by a piece of string, to which is attached an electrical blasting cap connected to a wire circuit. When a charge is generated, the blasting cap severs the string and the target swings to a vertical position through the counterweight of sand or gravel in the can. These targets can be constructed in five minutes at no expense. Salvage materials—cardboard cartons, wood and cans—are always available in the field as well as in garrison.

Other types of surprise targets can be devised to represent aggressor personnel and matériel and exposed by electrical means. A group of box-type targets can be exposed simultaneously by one charge. A number of standard E and F silhouettes mounted on a wooden pole which rotates through action of a counterweight can be easily devised. Actual size tank silhouettes hung in a horizontal position from a tree or posts can be suddenly exposed by the explosion of a charge representing a tank gun which breaks the string, causing the target to drop to a vertical position.

A sketch showing the target layout for a combat firing problem involving a tank platoon as advance party is shown in *Figure 3*. Five wire lines are laid, four from Point O forward and one additional (5) from P forward. A total of ten sets of targets can be operated by electrical blasting

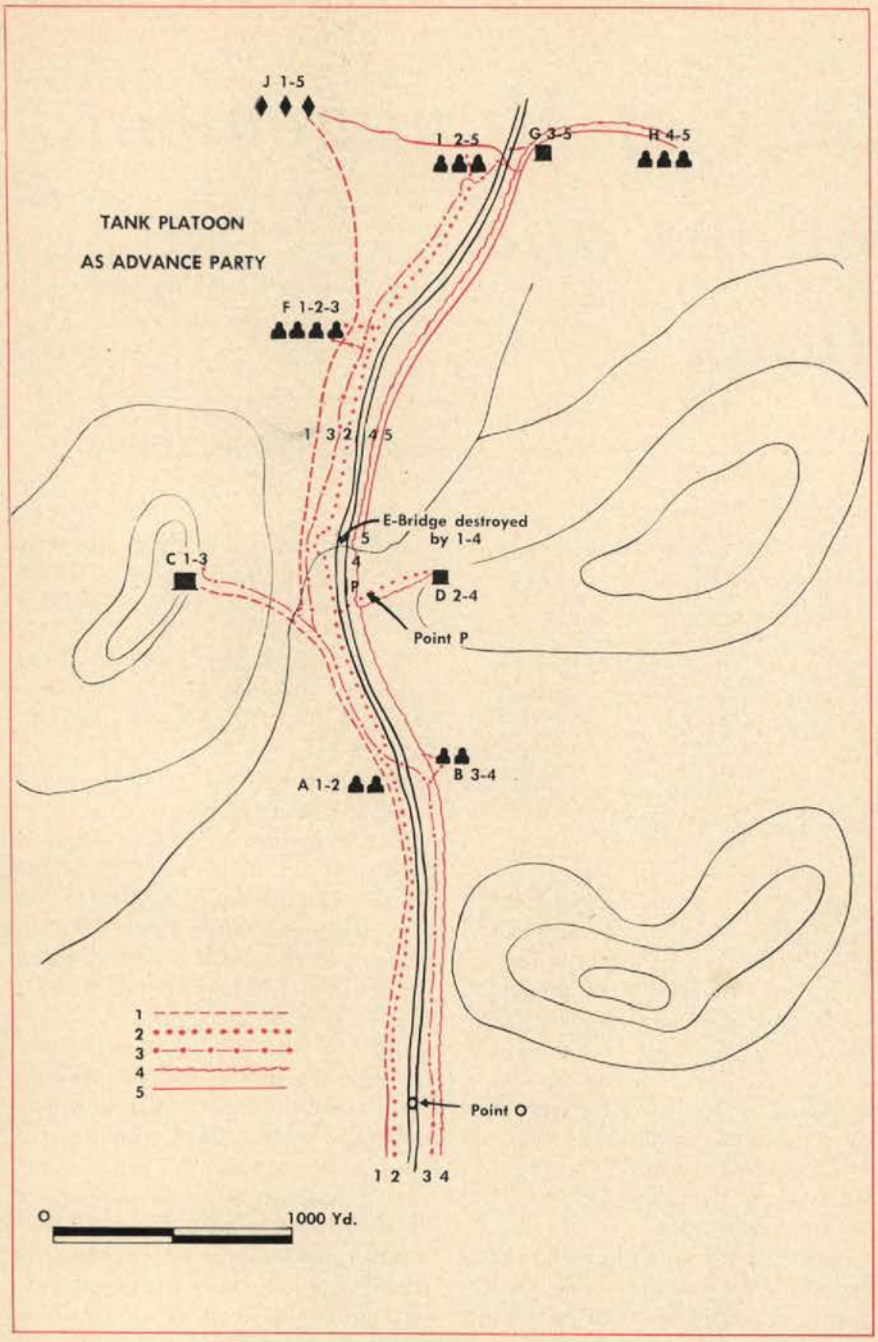

Figure 3.

caps and charges ignited by a detonator box, initially at O and, for the last four targets, at P. The officer directing and umpiring the problem is in contact with the target operator by radio. Depending on the decision of the platoon leader and the movement of his tanks, the umpire directs the operator to expose targets so as to present the unit with realistic situations which call for prompt and definite actions. For a platoon problem only about four or five sets of targets per run would normally be used. The additional targets allow flexibility, prevent other platoons from adopting preconceived solutions and provide for safety in that no target is exposed unless it is within safety limits.

One disadvantage is the possibility that wires may be cut by fire or by tank tracks. This can be minimized by locating wire properly. The laying and maintenance of wire is accomplished by personnel who follow up the exercise, check and repair wiring and reset charges.

It is apparent that there are many advantages in this method of conducting combat firing problems and combined arms exercises over conventional methods. The platoon leader must make his decision and issue his initial order without preconceived ideas of what will happen. He must maneuver against *terrain* and not against targets. Targets are located logically and exposed at a time and place calculated to direct maximum attention to weaknesses in planning or execution of his maneuver. At all times the platoon leader must have one section "overwatching," prepared to fire instantly on critical targets that appear. The time required for the first round and that for a target hit is taken by stop watch and should not exceed 10 and 15 seconds respectively. Each platoon leader can be given the widest latitude in executing his mission as the various targets will provide flexibility for the umpire to meet any reasonable action or maneuver. Safety precautions are under direct control of the umpire who will expose only those targets that are within safety limits. The surprise targets are particularly adapted to combined arms exercises as the absence of target operators in the impact area makes it possible to employ all types of weapons.

The few units that utilized electrically operated surprise targets in training during World War II were unanimous in testifying to their effectiveness in preparing men for the hard realities of actual combat. The lessons that may be learned are vital to battlefield indoctrination. They are particularly effective in testing the ability of tank crews to employ the new fire control equipment, including the range finder. There is no known substitute for preparing tank platoons and companies for battle, except radio-controlled targets which can be exposed and withdrawn by radio signals. Until this method is developed, targets controlled by field wire are the simplest, most practical, safest and most effective means of providing realistic combat firing exercises for platoon, company and battalion size units.

LIEUTENANT COLONEL EDWARD E. CRUISE, Armor, served in Europe during World War II. After 15 months with MAAG, Formosa he served with the 65th Infantry Regiment in Korea, as Battalion Commander and subsequently as Regimental Commander. He is presently assigned to the Weapons Department, The Armored School.

The Psychology of Management, Human Relations and Communications

by MR. FRED M. YOUNG

THESE subjects bear together closely and I shall endeavor to describe our viewpoint from our experiences as an apprentice, student, manufacturer, officer of the U. S. Army in World War I, in the Air Corps, Division of the Signal Corps, as technical investigator with the rank of Colonel overseas in World War II and as a civilian observer in the Pacific for a period during the Korean war. As an industrialist graduating through various processes and responsibilities with the automotive and aeronautical industry, we have seen in the field of human relationship, psychology of the worker and industrialist, peoples all, the confusion in the varied patterns of communications—all of this together has been a great study and a considerable experience.

I come to you, not as a prophet or smart person but rather with due humility, giving you some facts of my experiences and beliefs assembled from travelling about the world and this country, dealing and working with more than 200 manufacturers, operating more than 60 sales engineering offices and having contacts and experiences as a corporation and an individual with industry and the Armed Services, here and abroad. The breadth of our experiences with understanding and our responsibilities, if you please, have been considerable. They may be as far reaching as you wish to give your services or educate yourself and your needs as to yesteryear and today. This ever changing world brings about a need for training, education and study. Kettering has said, "There is nothing as constant as change."

World War II probably created the greatest vacuum and place for new things in the arts and crafts and sciences than has perhaps any period during our time. The opportunity is again before us in this new Electronic, Atomic and age of automation with the requirement for new metals, study of the new values of chemistry, metallurgy, as well as many product requirements becomes the new order of the day. This should present a new great opportunity to those who are willing to work hard, who are willing to look forward, who are willing to press themselves to solve the problems before us.

In the industrial end of these matters, the human engineering or human relationship between peoples in organizations, no matter what their level may be, the study and use of "Communications" has become most important. This is probably because of very rapid changes in our country and portending about the world during the last decade in which conditions we find ourselves cast and having to deal with. The younger people coming up have a different approach and perhaps attitude and have to be met with understanding on the part of those of the older school who would be their leaders. There is oftentimes a lack of understanding on account of the changes wrought by those who may have gone through Junior schools and embarked into a university or college career and is there any wonder that they should not have a feeling of insecurity or wonder "whither we are going."

In the years past, operations were ours to command. Times have changed. We must do things more as in a cooperative gesture not necessarily a socialistic venture but rather a more understanding and more intelligent approach is today needed. I have said many times "90% of the troubles of the world are caused by ignorance and misunderstanding."

Back in the 1900's, a great member of the Department of Justice, Louis D. Brandeis, stated, "nine-tenths of the serious controversies which arise in life result from misunderstanding, result from one man not knowing the facts which to the other man seem important, or otherwise failing to appreciate his point of view. A properly conducted conference involves a frank disclosure of such facts—patient, careful argument, willingness to listen and to consider. Bluff and bluster have no place there. The spirit must be, 'Come let us reason together.'" These words by Justice Brandeis were spoken wisely and still today would be well to digest our thinking to and observe.

We know full well that the world is made up to two kinds of people, the optimist, or positive thinkers and the pessimist or negative thinkers. In a conference, listening it is stated, is the other half of talking. A message is 50% sending and 50% receiving. A fair and clear statement of fact said in few words is most important, if good is to come from a conference or a discussion. Remember as is well said, "there are three sides to every

MR. FRED M. YOUNG presented this paper at The George Washington University Air Force Manpower Management Training Program, Washington, D. C. He is the President of the Young Radiator Company with plants at Racine, Wisconsin and Matoon, Illinois. It is printed in ARMOR with the kind permission of the author.

Many articles are perused in this office for possible publication. Ofttimes the relation to the

story, your side, my side and the right side." Too, it has been said as to a statement, "when a man's knowledge is not in order, the more he has, the greater will be his confusion." That is why we like to make our conferences or reviewals of matters short and terse. We have an agreement within our organization that there should be three answers. They are "Yes," "No" or "I don't know but I will find out." Dealing with men who will meet you on a common basis of that kind makes it possible to handle matters rapidly instead of going over them again and again. Fred Allen said of a conference, "It is a gathering of important people, who, singly, can do nothing, but together can decide that nothing can be done." If words and phrases are not properly assembled and used a conference is of no value. We should always look at and consider the facts.

As to words and discussions, I quote:

> Words are pictures of thoughts and facts which have become mental concepts. Unless the words used convey the same meaning to the mind of the reader that they do to the mind of the writer, confusion and misunderstanding will be the result. Lack of appreciation of the finer meanings of words and their shadings leads to haziness and error.

It is also said, "the trouble with most conferences is that they're meetings at which people just talk about things they should be doing." There you come to the ability of a person to do or not, as his courage and will allows.

Professor William James of Harvard is quoted as saying—"that the average man develops only ten per cent of his latent mental ability and that we are making use of only a small part of our possible mental and physical resources. Men who make their mark and give their strength and thinking power to same, will rise high above the norm and sometimes appear as super persons. Actually, one cannot drive himself to success, one must be driven by a dominant, constant, and enduring emotion or mood, cultivate a love for doing and when this desire becomes a passion for serving you will be driven to do everything necessary to success." Actually, as has been said, "the future of the world lies in the hands of those who are able to carry the interpretations of nature a step further than their predecessors."

Summing up the hard facts that might be considered for the Military, General Wavell, in listing the qualities of "The Good General," stated as follows: "The General must know how to get his men their rations and every other kind of stores needed for war. He must have imagination to originate plans, practical sense and energy to carry them through. He must be observant, untiring, shrewd; kindly and cruel; simple and crafty; a watchman and a robber; lavish and miserly; generous and stingy; rash and conservative. All these and many other qualities, natural and acquired, he must have. He should also, as a matter of course, know his tactics; for a disorderly mob is no more an army than a heap of building material is a house." It is stated further "that it does not take a trained and experienced military scientist to devise strategy; an intelligent amateur can do it. But the carrying out of that strategy requires an expert, one who knows the function and performance of the weapons at his disposal and how to get to the scene of battle 'Fustest with the mostest.' "

Referring to tactics, in McGuffey Readers, TACT and TALENT are explained as follows:

> Talent is something, but tact is everything. Talent is serious, sober, grave and respectable: tact is all that, and more too. It is not a sixth sense, but it is the life of all the five. It is the open eye, the quick ear, the judging taste, the keen smell, and the lively touch; it is the interpreter of all riddles, the surmounter of all difficulties, the remover of all obstacles. It is useful in all places, and at all times; it is useful in solitude, for it shows a man into the world; it is useful in society, for it shows him his way through the world.
>
> Talent is power, tact is skill; talent is weight, tact is momentum; talent knows what to do, tact knows how to do it; talent makes a man respectable, tact will make him respected; talent is wealth, tact is ready money. For all the practical purposes, tact carries it against talent ten to one.

Tact is ever so necessary and means everything. Of course, one can coast and not succeed as the Spanish proverb states, "How beautiful it is to do nothing,—and then to rest afterward." But that will neither embrace tact nor talent. The man who goes forward will always think before he speaks and study the art of Communications at its best. He should feel equal to the problems of his environments, whatever they may be, and have no fears. It is only when he feels inadequate to the solutions of the problems of this environment that he becomes fearful. It has been said a person can be had to act intelligently in any given environment whenever he satisfactorily solves the problem of that environment. The Law of Intelligent Action tells us the intelligence of a person's action in any given environment is dependent upon three primary factors.

1. His desire to solve the problem.
2. His ability to solve it.
3. His capacity for handling the human relations involved.

Intelligence and courage always remain as a requisite. It is said, "Conceit is rooted in ignorance and misapprehension of fact. Conceit thinks it can but it really cannot. Confidence is intelligent faith based upon fact." These words disprove the fact that you can rest on your laurels or rather "rust on your laurels" and get by. You cannot, you have to give and take, you have to learn, know and do.

In Washington in the front of the Union Station is carved the wisdom of Dr. Samuel Johnson, who quotes the Spanish Proverb, "He who would bring home the wealth of the Indies, must carry the wealth of the Indies *military is quite remote. However this outstanding speech by one of our nation's top indus-*

with him," so it is in travelling, a man must carry knowledge with him if he would bring home knowledge. So much we in life, "Give and Take."

Sometimes the other fellow is bound to do or say something which we do not like—

On the other hand, undoubtedly we sometimes do or say something which he does not like.

What is to be done about it?

Life, to be worth while, must be largely a matter of "give and take."

We know this—and it applies alike to the home, the workshop, the factory, the office.

No one succeeds alone. Whether we are in the ranks, in charge of a department or at the head of a business, we need the help, the loyalty and the friendship of the other fellow.

There is but little room for doubt or misunderstanding when we maintain the "give and take" attitude.

A one-sided handing out of belief without listening to and considering all three sides of the story never made a good leader. Conservative, humble and fully meaning what you state and knowing the facts builds confidence in those about you. To this end, Discipline, which is described in the Soldiers' Handbook, The Air Force Manual, The Bluejackets' Manual, and the book of the Marines, discipline does not apply to those alone being commanded. In fact, it is probably more important the giver of the commands or that you and I discipline ourselves before we try to or are required to discipline others. Discipline in life is one of the master keys to success. It is easier to slip by the wayside than it is to set the example. That goal, repetitively, is all important to an executive officer or a leader in any way or any kind.

William Upson, creator of the Alexander Botts Earthworm tractor stories, stated, "American business gets a higher type of discipline from its employees. It consists of not obeying the order the boss gave you, but the order he would have given you if he knew what he were talking about." That is in a humorous vein, but it would be true, of course, if the orders were not prepared and not given of fact. An order as a request, or an order should be, must be obeyed.

In the use of words, I like to refer to Chapter Three of James in the Holy Bible. The explanation of the use of one of God's greatest gifts, the tongue, is most interesting and I urge that in counting our blessings this be reviewed. Words are futile, words can create either great love and devotion to a process or work, and too, it can be dangerous to the point of losing all, saying the wrong thing at the wrong time.

In the Air Corps office on a wall was stated, "A Prayer—Oh Lord, Help me to keep my big mouth shut until I know what I am talking about." We say in our organization, "Nothing ever happens around here that is important enough to lie about." Those are hurting words, but if that situation is there, would it not be better to have an examination of the conscience with the truth and be right? If you make a mistake, you have trouble. If you correct a mistake, trouble will not occur. The bigger the man, with intelligence and courage, the less chance there is that he will defy honesty. Honesty is basic. There are no white lies or lies of other color. It is either the truth or the opposite. It is so important, as the I.B.M. sign reads, "THINK." We have these signs about in our offices and works which we intend shall cause us to use our conscious mind instead of subconsciously just moving and not waking up to the facts that exist but cause us to act according to the revelations before us or find out what they should be. Quite to be sure, it takes effort to THINK but not as much as it takes to do whatever it may be twice instead of once, right the first time.

To cause our people to think and to urge them for personal and cooperative effort, for several years we have had educators from universities, colleges, and other industries teaching our line staff controlling our works and departments on how to think, and how to do embracing the intelligence of human relations and "Communications." One of our "waking up courses" was an eminent specialist and leader in this field, who had as a motto, "It has often been said of this Program that those who take it are never quite the same again." With our staff, I took this Human Engineering, intensive course, and I can assure you that I shall never forget it.

Reader's Digest, in November 1953, had an interesting condensed story by Stuart Chase, "Are You Listening?". Do we open our minds to the things that are said and do we allow ourselves to admit the speaker to give us his views? With an open mind we would have a cooperative venture in getting things accomplished.

I liked the explanation about learning, and I quote, "No one can teach us, you have to study if you want to learn." This is short and terse but you are the one to accept or not, if you will. The opportunity, I believe today is greater than before. The man with vision and persistency will always rise above the crowd. Perhaps much or all, too, depends upon whether you are one of those who cannot do as you are told or one of those who can do nothing else but. There is room for improvement in any job, but the opportunity lies not so much in the job as in the man. As you know, we all have human frailties but I find we are all pretty human. As David Harum, the horse-trader stated, "The's as much human nature in some folks as th' is in others, if not more."

The individualism with which we accomplish our work may be explained by the four kinds of leaders—(a) The dependent leader, who follows rules to the letter and never takes a chance. (b) The self-sufficient man who sets arbitrary goals and drives his employees to reach them. (c) The manipulative leader who actually guides—understands people and how to induce them to help him. (d) The integrated leader who gets results by developing teamwork, letting employees help with planning and en-

trialists will serve well anyone who aspires to becoming a leader in any capacity whatsoever.

couraging them to offer suggestions.

A man who accomplished great results in industry said to me, "I would rather have ten men working with me than 100 men working for me."

As to responsibility, I quote A. W. Robertson, Chairman, Westinghouse Elec. & Mfg. Co., ". . . My philosophy is that in an organization every executive must be granted authority commensurate with his responsibilities. If you hold a man responsible for results, he must have every reasonable freedom to exercise his own brains to achieve the results expected. . . ."

If you give a man the responsibility, you must give him the authority. If he is given the authority, he must take the responsibility. This is perforce, should be a ritual and a requirement.

General Patton with his men used a direct approach. On one occasion before his men went into an engagement he told them what to do. He warned them as a rule 10% would die but each officer and man should individually observe the requirements that make a first class fighter, officer or man. Patton's men came through. They were feared by the enemy and the Third Army was a great driving force of our group of outstanding U. S. soldiers and armies in World War II.

People should be treated as far as possible with an individual and perhaps understanding approach. All people react to different reasoning or approach. It is important therefore, that a leader or to become a leader, although intelligence and undaunted courage are a factor and necessary, still humility, understanding and an element of "give and take" attitude will make possible a shorter road to success than one who has a closed mind, does not have breadth and intelligence. Satisfactory end results are obtained through team work and coordinated effort as far as possible. An intelligent approach, with a well thought out plan will win, where an unplanned approach usually fails.

Elbert Hubbard stated, " I believe in cooperation even with people I do not like." As to myself I will state I know of no man whom I hate, which means we have learned to live and let live, to recognize the other person's viewpoint, but fight for the right. Much as Theodore Roosevelt said, "Aggressive fighting for the right is the noblest sport the world affords." We have extroverts, ambiverts and introverts to deal with, as well as different nationalities, varied nervous systems and mental characteristics.

Only a few weeks ago in Canada we had a lesson in "Communications" that would put the average person to shame. The Ojibway Indian guides, guiding three groups of our men, said few words, they tactfully carried out their responsibilities, met at an appointed time at noon, did their cooking cooperative and efficiently and brought us back each time safely, always, without fail. As an industrialist, with many departments in a plant, it interested me to see these simple comparatively uneducated men act with unanimity and concert. They were a credit to any group.

"Communications" are not alone in the use of words as has been brought out in the book entitled "Objective Accounting" by a late industrialist, Carl Braun. "Transmittal in Industrial Management of facts, much as in 'Communications' several effective means are used for breaking down the barriers of misunderstanding. One means and a chief means has been somewhat overlooked, Accounting. The barriers still stand firm and tight mainly because accounting has not been recognized for what it is—a means of communication. The job of accounting is to gather information from throughout the company, work it into coordinated and helpful shape and transmit it to others while memories are still fresh. Industrial accounting is thus essentially a problem of communication." The use of lights and signals may also be enscoped in this. Among the archipelago near Sweden between the islands there are colors in lights that may be seen averting crash tragedies. Also with greater speeds colors of airplanes are being observed. A very interesting study also in Sweden at the Ericsson Telephone Company, in their board room, they show communications from the beginning of man which brings out the fact that it is not new but has always been an important part of our living. More so since the world has become far more learned and intelligent, where the need of getting things done is the urge and order of the day and where with the telegraph, telephone, radio and television we have new orders of requirements, which will greatly assist us in the future.

I might say a word about our responsibilities as citizens where has been built an order of fear even with our greatness. I like to see the strength of people shown rather than fear. Fear is basic but strength comes from knowing the facts and intelligence of a situation and believing in himself.

About peoples Dr. McFarland has stated, "The people I fear most are not the Communists, left-wingers or crackpots. I fear the good people who believe the right things, belong to the right things and 'subscribe' to the right things, but who never do anything about it."

We have said much about the use of words, about getting things done, about responsibilities and as citizens, each of us have a strong responsibility to our country, which will measure in total equal to the amount it should be if we each individually do our part for our country, for our peoples, incidentally as well as for ourselves.

Summing up what to do, what can be done, comes down to a personal matter with myself or with you. If I wish to succeed—if I like what I am doing, if my aptitude is within the requirements of the task which I assume, then will I learn to study, accomplish and do the work assigned. It can be done if one has the will to do it and wishes to assume the responsibilities that go with it, that go with leadership. If we continue to study, with an order of humility, with strength and courage, success to those who wish to give and take, is just around the corner.

CARDED

This Concerns You!

by MAJ. GEN. JAMES C. FRY

Chief, Career Management Division

ARMOR offers the means by which a great deal of information of vital importance to officers can be disseminated around the world. Questions concerning schools, promotions, stabilization, category renewal, transfers, concurrent travel, and a multitude of similar personnel problems reach the Career Management Division almost daily. In the subsequent issues of this magazine, we will endeavor to concentrate answers to most of the questions that are uppermost in officers' minds. I shall in this article touch lightly on a few subjects that will be handled in more detail later.

Eligibility for and probability of attending military schools accounts for many communications. An officer will attend only one of the five senior schools. The National War College, The Army War College, the Industrial College of the Armed Forces, the Naval War College, and the Air Forces War College are all on the same educational level. Graduates of these schools all receive equal consideration for promotion and assignment.

Selection for military schools beyond the advance Branch Course is competitive, Career Management making the selections based on an evaluation of each officer's record in the zone of consideration. An officer's efficiency, combat record, troop duty, command duty, staff duty (all types) and instructor duty are all weighted and totaled to determine the final qualification score which determines relative standings.

Too much emphasis is being given in the field to attendance at top schools. Less than 45% of Regular officers and only a token percentage of Reserve officers can attend the Command and General Staff College. Only a fraction of that number will go on to attend the five senior schools. Eligibility does not qualify a man for attendance, nor does graduation insure promotion. There are many general officers who have never attended any school except their branch school.

Representatives of the Career Management Division will visit each Army Area on the average of once every three months. They are familiar with all policies and procedures involving personnel and can supply answers to practically every personnel problem.

Many officers seem to think that the way to secure preferential treatment is through influential friends. This rarely results in other than routine action. If officers will contact their Career Branches, they will receive courteous and prompt consideration and exactly the same assignment as if they had sought intercedence by friends. A current and carefully prepared Preference Statement is the best type of communication. It is always considered before orders are issued. Don't be afraid to spell out the exact reasons that are responsible for requests.

The term, "Career Management," has a strange appeal and there is indication that many officers feel Career Management is at fault if they fail to receive the promotion or assignment which they seek. It should be remembered that the primary mission of the Career Management Division is to insure the smooth and efficient operation of the Army through the wise assignment of appropriately qualified officers to all increments.

World-wide assignments cannot be run from a duty roster as a first sergeant supplies kitchen police. The reasons are obvious—the qualifications needed for each job are different. Another point generally overlooked is that money has a great influence on every move that is made. The moving of officers' dependents and household goods must be justified on the basis of Army requirements.

I cannot stress too much the importance of command experience. There is always room for the officer who seeks responsibility and who is anxious to demonstrate possession of command qualifications. There is no type of human endeavor where it is so important that the leader understand all phases of his job as that of the profession of arms. A military commander is vested with a high degree of authority which extends into matters normally considered individual and personal. Everything concerning a soldier's existence, ability, potentiality, professional knowledge, as well as those matters which influence his personal life such as his food, clothing, comfort, promotion, and in time of war his very life, depends upon his commander's knowledge and appreciation of the importance of all phases of his work. The ability to command is always weighted heavily in every personnel action—particularly promotions.

I would like also to emphasize the need for accurate and detailed de-

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scriptive comments when efficiency reports are prepared. The implication of the absence of a clear word picture in the space reserved for descriptive comments is that the reporting officer didn't consider the officer rated of any special importance. Descriptive comments on efficiency reports are generally the determining factor in selecting officers for promotion and are of invaluable assistance in making appropriate assignments. It is unfortunate that many officers fail to take the time to give a clear and concise description of the qualifications and potential of officers who have served them loyally and efficiently.

It should be clearly understood that the Career Management Division can only influence officers' careers when they are changing stations. This is very little in comparison with the opportunities available to commanders in the field. Department of the Army policy as spelled out in TM 2C-605 specifically makes commanders responsible for developing officers by rotating them through their staffs and through command assignments. The chief of every staff section in every headquarters has an opportunity to assist and urge compliance and appreciation of such policies. Some commanders are reluctant to give opportunities to officers who have not already qualified for a new duty assignment. This is basically why at the beginning of World War II we found substantial numbers of officers who were qualified to perform only one assignment and could not meet the broad organizational and administrative demands of war. Men grow and develop with added responsibilities and if selected for an assignment on the basis of indicated potential, few mistakes will ever be made.

My closing comments are that the Department of the Army requirements remain paramount and able officers are needed to supply the needs of MAAG's, Missions, and troop assignments in 74 different nations. A man's career is generally in his own hands. He should seek good assignments, avoid prolonged pleasant tasks at the expense of opportunities to demonstrate command and organizational ability, and turn in a pattern of performance of duty on every assignment that will insure a good report, regardless of what or where the job may be.

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by **CAPTAIN WILLIAM E. McKENZIE**

TRAINING THE STAFF

An economical way to train the staff, both General and Special, is by holding a Command Post Exercise (CPX). It serves as an excellent testing ground for communications.

THE U. S. Army is in business to produce protection. This product, like those of industrial America, must be constantly improved to meet changing demands.

Each improvement—as industry would perfect a new piece of machinery—must withstand thorough testing on the drawing board, in the laboratory, and on the proving grounds.

One of the Army's proving grounds for its plans is the "command Post Exercise" or CPX.

If the plan to be tested calls for the use of a couple of field armies it can become an expensive proposition, much as if the manufacturer built a million pieces of machinery before testing the quality of a few.

The CPX saves money because only a handful of actual troops accompany the commander and his staff into the field, saving the time and expense involved in calling thousands of men away from their usual duties.

However the staff officers are given a chance to prove to their commander

INTELLIGENCE (G-2) PLAN
SITUATION DEC 16, 1944
BELGIUM
INDICATIONS
AGENCIES TO BE EMPLOYED
TIME TO BE REPORTED
AT OBSERVED
AS AVAILABLE

U. S. Army

The G2 Intelligence Plan is important in the development of the Operations Plan.

U.S. Air Force

Close liaison with Air Support irons out wrinkles prior to the actual test-combat.

that their various portions of the plan are sound. If the G3 (Operations) has planned an attack to move too quickly, he will suddenly find himself opposing the G2 (Intelligence) estimate of a powerful enemy. The G1 (Personnel) and the G4 (Supply) will soon be reporting that men and material are being expended too rapidly for a continuing action.

If the G1 has overestimated his personnel needs, he will find the Transportation Officer complaining about idle vehicles and the G4 reporting an unbalanced pipeline with too many men in the rear to be fed and too much food forward to stockpile.

It is to solve problems like these and discover planning errors that the commander takes his staff to the field. Most commanders would prefer to give plans a thorough test by using all the men, tanks, guns and supplies needed in performance of the protective mission. That, however, will come later when maneuvers are utilized to test the plan, the staff, the men and the commander himself.

How does a CPX operate? Do four or five colonels sit down with the general and discuss what this or that unit can do and what supplies of food and munitions can be delivered?

Physically a CPX looks almost exactly like the headquarters area of a unit face-to-face with the enemy. It has the same communications, same staff personnel with assistants, and the same air of bustle. Engineer, Signal and Quartermaster units are active. Army aircraft flit on and off unlikely and improvised landing areas with messages and commanders. Orders are issued, alerts called and briefings held.

But the orders move no troops, the alerts fight off no enemy and the briefings reflect the positions of no actual front lines. Even so, energetic and imaginative staff officers find the CPX no place where magic wands capture hills, where the G2 is always accurate on enemy capabilities, or where rain never deters armor or trucks from arriving on time.

The exercise director has it in his power to throw in any factor desired and may work overtime to bend and strain the operations plan to the breaking point. That gently sloping approach to an enemy-held hill, supposed to be overrun by armor in 15 minutes, suddenly erupts with the explosion of simulated mines. Front-line units (themselves simulated) report hearing enemy tank motors behind the hill. The 15 minutes could stretch into two days unless the basic plan can adjust itself to this new emergency.

One recent CPX at high level called for the use of artillery. A modest rate of fire was ordered for the 105mm howitzers, just enough to make the plan work. When the order was issued, an ordnance officer said his facilities were inadequate to supply even the small amount of ammunition necessary.

That little monkey wrench nearly threw the basic plan out the window, but agile G3 minds came up with an alternative answer which was in line with the headquarters' supply potential.

Centers of activity on any full-scale CPX are the G2 and G3 operations, many times combined under one spread of canvas to aid coordination.

When combined, situation maps are kept up to the minute by trained personnel. G2 maintains a map showing all reports he has received of enemy activity—patrols, concentrations, units (many times by name and number) and supply locations. The G3 map reflects the same, and more, information of our own forces, plus notes to indicate outstanding developments on the front.

U. S. Army

Communications tested during the CPX increase chances for success in battle.

Photo—U.S. Army

The Field Artillery Fire Direction Center gets a good workout during the CPX.

A third map is a composite of these two so that all the information is readily available to the commander and his entire staff

Operation of this combination is a masterpiece of complex simplicity. The theory is simple in that telephone and other communications tie the headquarters to superior, lateral and subordinate headquarters, each of which has the duty of passing along information concerning friendly forces or the enemy.

When one of these units calls in to G2 or G3, a sergeant answers the phone, notes the message, passes it to the next man in line who logs it and hands it to the third man who places it on the proper map.

The complexity comes in the high degree of training needed by all officer and enlisted personnel concerned. One slight error in mapping or unit designation could upset all calculations.

Both G2 and G3, then, are concerned with collecting and recording information upon which to base recommendations to the commander. The recommendations can be no better than the information's accuracy and completeness.

Here is where the plan pays off, where proof shows that it will or will not work. At problem's end, the G2 and G3 maps must reflect success or the commander must seek a new or revised plan.

While the General Staff is busily testing its collective plan against the capabilities of all elements of the entire command, one group of officers and men is equally busy carrying out its own wartime job.

The job is housekeeping for the headquarters, and paradoxically, when there are no houses the housekeeping job is compounded.

Once an area is selected for occupancy by the headquarters—the area must have the ofttimes conflicting attributes of inconspicuousness, accessibility by all means of transportation, concealment from air and ground, and an interior roadnet—comes the job of preparing and moving into it.

Engineer crews lay it out under the direction of the headquarters commandant, improve roads as needed, stockpile rocks against muddy days and water against dusty ones. They install a system of tents to house the staff sections and camouflage the canvas dwellings; they erect personnel tents. All this work must be done with care to make certain that the campsite looks completely natural from the air after a week's occupancy.

After the Engineers come Signal crews with wire, laying phone lines and hooking up switchboards which will, if necessary, reach anywhere in the world. (One colonel walked into his office tent for the first time at the beginning of a European CPX and was asked to return a call made earlier from London. He picked up the phone and in a few minutes had his party—the operator who placed his call was sitting on a box, a rifle by his side, running a switchboard which tucks away in a box.)

Transportation officers line up vehicles of all types to haul the headquarters to its CPX site. Information must be furnished to the provost marshal so that he can secure the road space over which the move will take place. Transportation has to hide the myriad of vehicles so that they don't reveal headquarters locations, but still be immediately available. Maintenance crews know that vehicles break down faster in the field than in garrison, so they must be ready for anything.

The Military Police move their activities to the field. The first man anyone sees upon entering the CPX area is the MP manning the main traffic control point. It's a 24-hour job, no matter what the weather. MP patrols sift through the area all day and all night, seeking camouflage violators, maintaining the restricted areas and generally insuring an orderly campsite.

Messengers do a rushing business. Under the control of the Adjutant General, foot messengers patiently trot from office tent to office tent with routine and classified messages. Motor couriers are available on 24-hour call to run messages, packages and personnel to adjacent camps. Army aviation operates helicopters and light planes far beyond the area under the command of the headquarters. These pilots fly in the foulest weather and land in the most improbable and unsuitable places to deliver their cargo of high priority messages, orders and personnel.

The CPX, then, is the staff officer's training ground and the housekeeper's week-long nightmare. It is the time and place where a potentially costly mistake can be cured for a few pennies—the opportunity for a headquarters to prove itself under field conditions. Above all, it furnishes the commander a chance to see a plan calling for the commitment of 60,000 men being tested, altered, stretched, bent and proved or disproved yet employs a mere group of 600 personnel.

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by DR. ROGER SHAW

CARDED

OF KNIGHTS, ARMOR AND CRUSADES . . .

Tradition in military units is a base on which unit esprit and morale can be constructed. How various orders, such as "The Order of the Thistle," survived down through the ages makes an interesting story. This type tradition still flourishes in many of our European North Atlantic Treaty Organization member nations.

NOT very long ago, a young European Queen created her non-kingly Balkan husband a Knight of the Order of the Thistle, and of St. Andrew, just as if chivalry were still in flower. As a matter of fact, however, the Thistle, dating back only to 1540, or perhaps to 1687, depending on how one counts, is a veritable youngster compared to the elderly predecessor orders which have come or gone, on horseback and afloat, across the European and Near Eastern scenes: the English "Garter" of 1349, the Burgundian "Golden Fleece" of 1430, these in turn allegedly modelled on King Arthur and his Round-Table Knights and on Charlemagne and his celebrated Paladins, both the latter groups being largely mythological. And here we must turn to deal with the *functional*:

When William the Conqueror conquered England in 1066, there were, properly speaking, no knights, no chivalry, no heraldry. William's mounted and armored followers were known generally as *Milites* if of some property and gentle blood, and if of lesser rank, were sometimes spoken of as this or that *Armiger*. It was not until after the beginnings of the long Crusades (around 1096) that the knightly orders began to develop, some of them largely monastic, others resembling perhaps modern college fraternities; and thence stemmed the system of chivalry, as such, and the shield devices which led eventually into armorial bearings and latterday coats of arms. Changes in the style of helmets—the closed-faced "pothelm", and the all-concealing visor—had much to do with chivalric trade-mark identifications, since one could no longer recognize friend or foe on the cavalry battlefields of the murky and muddled Middle Ages.

The Crusades themselves, as far as the Near East was concerned, opened with a famous Papal exhortation at Clermont in 1095, and closed with the ultimate evacuation of Near Eastern crusading holdings at a date often

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set approximately in 1291. The crusading armies themselves were often organized feudally under famous Western counts and dukes, or under medieval Kings themselves, although occasionally armed mobs of commoners, or even unarmed children, would trudge manfully to the seaways up the Mediterranean, or down across Central Europe and so over into Asia Minor. Hence, the Popes, who were the spiritual and to a degree the political leaders of the Crusades, sometimes found themselves without direct support on the fields of battle, for the lay leaders, noble or royal or rabble, tended to run away with the game despite the essentially religious character of the whole long series of crusading operations.

The Middle Ages were both mystic and military, to a marked extent, and generally unworldly. They were an era of monks and *Milites,* and the combination of the two funished most conveniently, from the Roman viewpoint, the shock troops of the Crusades. Further, the military monks were strictly international in composition, had few if any hampering feudal connections, and served directly the Papal power on the Tiber. Hence, in Palestine and Syria, these military monastic orders supplied really dependable Papal troops, to counterbalance the often uncertain and quarrelling monarchs and feudal dignitaries who (as on the notable and notorious Third Crusade) pitted themselves against one another in anarchic rivalry, or in the budding hatreds of English for French for Germans, even though modern nationalism had not yet evolved. Thus, on the Third Crusade, Richard Lionheart of England disagreed violently with the French King, found himself on quite good terms with the chivalric Saracen leader, Saladin, and was ultimately kidnaped and jailed by the Austrian Archduke on his way home, going up the Danube. To all this disorder, the crusading orders, with their new-type monastic "knights", zealots, disciplined, and Pope-minded, indifferent and indeed contemptuous of Kings and counts and courts, stood in the early Twelfth Century as "the answer."

Best known of the orders was that of the Templars. Various dates are given as to its foundation, but 1119 seems as good as any. This famous organization was originated by some eight mounted militarists of gentle blood (about to be called "knights" or "chevaliers") in order to protect civilian pilgrims to the holy spots and sites of Palestine. Their headquarters came to be at Jerusalem (captured by Crusaders in 1099) in a palace near the center of things and known as Solomon's Temple, and hence the name.

These new Templars followed the Cistercian rites derived from the Benedictine order of civilian monks, and wore on the heat-proof surcoats (over their chain mail) the *red* cross. Hence, on occasion, they were known as "Red-Cross Knights." Their symbol, too, was two knights riding one horse, to designate their personal poverty; but whatever the personal poverty of members amounted to, the order itself soon acquired immense riches. The original eight members had increased, in less than two centuries, to 15,000; and by 1300, the Templars actually owned, collectively, something like 9,000 castles and manors scattered over Europe and the Near East.

In fact, these Templars became the bankers, money-lenders, and financiers of the Crusades, constantly acquiring real properties because many barons would mortgage their estates to go crusading in the mysterious and alluring Orient. When such illiterate, though noble, laymen failed to pay up, through death or lack of success, the Templars foreclosed, and thus the order grew and grew. Their holdings everywhere were tax-free and subject only to their Grandmaster, and to the Pope at Rome. Their membership, though theoretically quite international, tended to center in Burgundy and eastern France, and their knights (to popularize) supplied the villain in Walter Scott's immortal "Ivanhoe."

As a natural sequence, these armored cavalrymen became the bankers for all of Europe, and as such, shared with the Jews the hatred of the needy in high and low degree. The local chapters of Templardom were known as "temples", and were often built *round,* to remind the members of the parent headquarters at Jerusalem. A church in Cambridge, England, is a present-day reminder of this practice. There were, as in most orders past and present, three degrees of Templars; from top to bottom, knights, chaplains, and servants and squires, the last not coming, as a rule, from "gentle" or noble families. Their standard was half black and half white (like that of the later flag of Prussia) and was nicknamed "Beauseant", while their motto ran "Non nobis, Domine." The *Bruderschaft* betwixt fellow-knights was closely guarded, and considered by many contemporaries to be extreme. In the Crusades, with their holdings and *esprit,* they tended to become a state within a state and a highly consolidated form of compact self-promotion.

After the recapture of Jerusalem by the Saracens in 1187 (an oriental triumph over occidentals reminding one of the fall of Singapore in 1942), the Templars moved to Antioch (celebrated in "Ben Hur"), and thence to Acre, Caesarea, and the island of Cyprus, off the coast. After the final evacuation of 1291, the order came, perhaps rather too promptly, home to its riches all over Europe, although headquarters now appeared to be the then still Gothic city of Paris. Here, in their financial opulence, and lack of military function, for the Crusades were over, they excited the envy and opprobrium of Kings, Popes, and other military and monastic orders.

The Templars were not a modest breed, and they had spent a long time in the Orient—the home of strange practices, and free-thought as well. Ugly rumors began to circulate about them and their exotic luxuries and habits. They were accused of having had close dealings with the "enemy" Saracens, and especially with the sinister heretic order of Assassins, led by the Old Man of the Mountain, a secret clan of three degrees which had levied blackmail successfully against *both* sides in the Crusades. Neophytes of the Assassins were doped with hasheesh and sent out to assassinate from their weird mountain castle-lairs in the Syrian and Lebanese uplands. Theirs was a lurid tale which appears, here and there, in the "Arabian nights", and is well worth a separate story.

The Templars, too, were charged with heresy, and it is true that they had turned into a secret society with highly private "orgies" of initiation.

In this, they differed from all the other monastic organizations, while they tended, as well, to lean to Manichean doctrines of Duality, respecting the principle of Evil, as well as Good. Many of the early Christians had been Manicheans, and this sectarian trend had lingered on in the Near East, as in southern France and elsewhere, and very likely the Templars had become infected in part by its rather logical teachings and beliefs. Finally, the Templars were accused of "perverted" and "unnatural" habits, as many other secret and all-male groupings have been, throughout history. Since the Red-Cross knights were not especially chaste in their livings, despite their monastic vows, there is not very much substance, probably, to this latter nasty accusation, although some medieval historians still tend rigidly to adhere to it. But the "temples" in the various countries, and especially in France, were rich.

King Philip the Fair, of France, was the close friend and political patron of Pope Clement V. Both envied the wealth of the Temple, while the Pope disliked their alleged heresies and irregularities, Meanwhile, the rival order of Hospitallers was ever hostile, while the masses dislike money-lenders and ostentatious richmen in every time and place. The Crusades being ended, functionally the Templars were "unemployed", and the stage was set—for one of the great purges of history. . .

In the early 1300's, Clement V was strongly under the influence of the ambitious and centralizing Philip of France, and even shifted his residence from Rome to Avignon (in southern France) to help insure complete political and economic cooperation between the King and "his" Pope. Indeed, the Papacy remained at Avignon for some seventy years following Clement's momentous move, finally returning to Rome with the medieval Church split by continuing schisms. As a first fruit of the Royal-Papal deal of the early Fourteenth Century, the Grandmaster of the Temple, Jacques de Molay, and other Templar leaders, were arrested on October 13, 1307, in a most sudden and unexpected manner.

There followed the famous, or infamous, Templar trials, marked by the most hideous tortures, confessions, refutations, more confessions, and impressive amounts of probably faked-up evidence relevant to heresies, immoralities, misdealings, and the like. The order itself was formally abolished on May 2, 1312, and the somewhat heroic De Molay was burned, with others, finally in 1314. Thus perished the Temple, and its extensive and attractive properties were divided between King, Pope, and the rival order of Hospitallers There is an interesting legend yet prevalent, that perhaps eight Templars, disguised as masons, fled from the purge to Scotland, where they found refuge among the freemasons and cathedral-builders of that hospitable land, thereby forming a higher degree in the serried ranks of Masonry and perpetuating the order under masonic safeguard. Most masonic authorities now appear to doubt this hallowed tale, and the celebrated, celibate, and celestial Temple may be regarded as having come to its end in 1312 after two stormy centuries of existence.

The Hospitallers, or Knights of St. John, the keen rivals of the Temple, generally regarded as "good boys" by historians, were a little older, having been founded as Benedictines probably around the year 1100. They formed a hospital corps for pilgrims and Crusaders to the Holy Land, and always tended, just a bit, to look down on the Templars. They wore a *white* cross, in contrast to the Temple's red one, and they fought on the extreme right-wing of crusading armies, as the Templars stood (rather suitably, in modern parlance, indeed) on the extreme left. Like the Templars, most of the Hospitallers were of aristocratic lineage, international, cosmopolites and yet seemingly recruited largely in central France. They had the three degrees: noble knights, priests, and brethren, or non-noble fighting men. After the Crusaders' capture of Jerusalem, this order switched from St. Benedict to St. Augustine, and so became Augustinians. Their three vows were of poverty, chastity, obedience, quite similar to the Temple, and all through the stormy Twelfth Century the Temple and the Hospital were chief defenses of the shaky crusading and feudal Kingdom of Jerusalem. But while the Templars were earning the reputation of speculators, the Hospitallers tended to gain the good fame of medics, healers, and friends of the people.

Organized in "commanderies", instead of in "temples", the Hospital had some twelve of these chapters in Syria alone, with others scattered over western and even central Europe, there being one in Prague by 1159. There were about eight Hospital "provinces", or districts, in Europe, headed by the customary Grandmaster. In Syria they remained till the great debacle of 1291, and even then, they did not retreat to Europe like certain of their comrades and rivals. Instead, they moved to the Near Eastern isle of Cyprus, which they made their headquarters, and thence to Rhodes in the era 1310-1522. And astonishing to note, they dismounted from their knightly steeds and took to the sea (as once had the Vandals and Vikings), manning Mediterranean galleys and fighting incessant water-war against the Moslems and Saracens who had worsted them on the land.

From Rhodes they retreated to Crete, and in 1530 to Malta, where they became known as the Knights of Malta, this mid-Mediterranean island having been presented to them by the King of Spain and Holy Roman Emperor, Charles V. Here, in 1565, the Hospital sustained a great siege under Grandmaster Jean de la Valette, holding off the hordes of the Moslem monarch, famed of his time, Solyman the Magnificent, "the Grand Turk." Valette became perhaps the Hospital Grandmaster best loved by history, and his memory in Malta is ever green.

The order continued successfully as a military monastic navy at Malta till 1798, when Napoleon took the island en route to Egypt, at which time the remaining knights chose the somewhat disreputable Czar Paul of Russia to be their Grandmaster, to defend them against the French Revolution and against modern unknightly times. In 1800, the British navy seized Malta from the French revolutionaries, and it is still there, Malta having been heavily bombed while its population was universally decorated for "loyalty" in the second World War. (Many Maltese wanted to join Italy.)

As to the St. John after whom the Hospital was named: he appears to have been originally a sort of medical holy man of the Sixth Century called

St. John the Almoner; later the order switched to St. John the Baptist, with whom it is more usually identified. The final "real" Grandmaster was Louis de Hompesch, feeble and timid-witted as he faced the French tricolor in 1798 (he died in France in 1805, the year of Napoleon's greatest triumph, at Austerlitz). But most of the surviving Hospitallers, in '98, went to Russia for protection, and to the Czar Paul, already mentioned. Here is the functional end of the Hospital after seven long centuries of service and of heroism, but which bore the expiring curse of the Temple through nearly 500 years. And indeed, if the surviving Templars joined the masons, and the masons helped to bring about the great French Revolution, as once occasionally was alleged, then the martyred De Molay had the last laugh over Louis Hompesch in the piping times of General Bonaparte.

Although the rival Temple and Hospital were cosmopolitan in composition and possessions, with their "temples" and "commanderies" of East and West, still they bore a sort of "Frenchified" touch which annoyed many people both in Germany and in England, as Walter Scott makes evident. Further, there was often friction between French and German Crusaders, this being especially notable in the Second Crusade, a notable event "which got nowhere fast". In general imitation of the Templars and Hospitallers, but more particularly of the latter, was founded the well-known Teutonic Knights organization, or *Deutsche Orden*, presided over by its Grandmaster, the mighty *Deutchmeister*. The TK, or more properly the D.O., was put together on military monastic lines during the siege of Acre in 1190, and was definitely considered to be a Germanic balance to the Gallic-flavored older orders. But though the Templars and Hospitallers lingered on in the Near East, the TK was to have a different story, and doubtless a more important one!

Early in the 1200's, the order was switched from the Near Orient to what is now known as East Prussia, under the famous *Deutschmeister*, Hermann von Salza. The Baltic natives of this northerly district were the last pagans in Europe, still worshipping an attractive *horse*-headed gentleman divinity whom the Papacy thought ought to be suppressed. Hence, Baltic-shore Crusades were launched by the Teutonic chivalry, and in a half century's work they had conquered and christianized East Prussia, which province the TK made its permanent headquarters. Thereby, the knights became a ruling class over the defeated and converted Balts, whose closest kin today would be the luckless Lithuanians.

The TK gradually became more and more feudal in nature, and found less and less crusading to do, until they met with an epic defeat by the Poles and Letts at Tannenberg in the year 1410 (which was "redeemed" by Ludendorff at the "second" Tannenberg in 1914). Thereafter, they tended to become feudal dependents of the Polish Kings, holding on in East Prussia as best they could, with their great fortress at Marienburg. Then came the Protestant Reformation in 1517, and in 1525 the Grandmaster, Albert von Hohenzollern, changed the whole system. He turned Protestant, married, became the secular Duke of East Prussia, while his military monks turned into vassal lords, or *Junkers*. And the TK, turned Junker, became the backbone of the later Prussian army, whose officer caste—by descent or imitation—harkened back to the Crusades and to Hermann von Salza. For in 1618, two years before the Pilgrim Fathers pilgrimaged, the Hohenzollern Duchy of East Prussia united with the Hohenzollern Electorate of Brandenburg-Berlin, thereby founding the modern Prussian State which was, under Bismarck, himself of Junker family, to unify all Germany so effectively in 1870: to last until 1945.

The TK order comprised special devotees of the Virgin Mary, hence their name for the Marienburg headquarters. They included the usual three degrees or classes, of knights, priestly ones, and servants or squires. Like the Hospital, the TK was Augustinian in its rites, and they wore a *black* cross. They did some hospital work at Jerusalem and at Acre before moving to the Baltic strands, and many, if not most, of the knights came from the Rhineland, Western Germany, and the Netherlands. It will be remembered that Chaucer's "Knight" had served with them even though he was an Englishman.

From the sombre black cross and white surcoat of the TK came the black and white of the Prussian flag, and the black Iron Cross of 1813—in which year romantic Prussian youth rose (on St. Patrick's day, by chance) against Napoleon, turning the tide to victory two years later at the battle of Waterloo. For the Iron Cross was inaugurated deliberately in memory of the dear departed Teutonic Knights. And from the Iron Cross, and hence from the TK of Acre and Marienburg, derives the famous German warplane insignia of 1914 and 1939, flown by sky-paladins like Baron Richthofen and Hans-Ulrich Rudel. (The Richthofen Flying Circus is well known. But Rudel destroyed from the air some 519 Russian tanks, and sank a Russian battleship and two cruisers.) Happily, the unpopular Nazi Swastika is no relation whatsoever to the historic emblem of the *Deutsche Orden*, and hails probably from the very ancient Orient. The true TK ended with the "heresy" of Albert Hohenzollern's Grandmastership, as the Hospital's reality terminated with Hompesch's weak leadership, and the Temple met extermination under its twenty-second Grandmaster, De Molay.

All three orders have left relics among the noble decorations of Europe, and also pertaining to the higher Degrees of freemasonry.

Meanwhile, there were Crusades and military monastics in places other than the Near East and the Baltic hinterlands. There was, for instance, the Spanish peninsula. Here took place perhaps some eight centuries of intermittent crusading. For the Saracens had conquered Spain in 711 A.D. by overthrowing the Gothic ruling class in a decisive battle at Vejes de la Frontera, and seemingly endless fighting continued down to the final Saracen (or "Moorish") reverse at Granada in 1492, in the very year of Columbus' sailing.

Although the genuine Near Eastern operations only lasted for two centuries, from the close of the Eleventh till the late Thirteenth, there was considerable connection between the two areas—Palestine and Spain—during, before, and after, this era. And the famed crusading orders of the French, Germans, and English, found their counterparts down on the peninsular Spanish fronts below the

Pyrenees mountains which (the cynical French have always maintained) serve to divide Europe from Africa. However, among other romantic analists of the Hispanic orders, is the lush the sentimentally stirring Chateaubriand. He likes to write of the Calatrava and Alcantara, not to mention the Santiago and the noble Medesa—Santiago meaning merely "St. James". . . .

The Calatrava order was older than the Teutonic Knights, and obviously had in mind the Hospital and the Temple when it came into being in 1158. The new brotherhood received as a "perpetual gift" the town of Calatrava, during the Middle Ages a strongly fortified spot of which nothing now remains except a single romance-infested tower. In return for this grant, the Calatrava was expected to defend the town against the Moors or Saracens, and the order received special favors from Pope Alexander III, while it fought firmly against the so-called infidels.

There were a number of Christian states in Spain, all opposing the Moors, but themselves racked by baronial and civil warfare, and the Calatrava order formed a mainstay against the Moslem foe much as did the Hospital and Temple in the far-off Holy Land. The knights, however, actually lost Calatrava town in 1197, but recaptured it in 1212, the year of the hideous and ill-fated Children's Crusade on the "other" Christian fighting front. So strong did the Calatrava become that it did not fail to put pressure on various Spanish monarchs to guarantee its privileges and liberties, joining with the Alcanters and the Santiago in such power maneuvers, to which unwilling Kings gave way because they found the orders indispensable.

After 1400, there came a series of civil ructions between Grandmasters which much annoyed Ferdinand and Isabella (of Aragon and Castile), whose marriage in 1469 helped to consolidate Spain into a modern national state. The royal pair disliked the various orders of Spanish Crusaders, whom they found uneasy tools even against the Moors, and shortly before the Columbus voyage they cancelled a fresh election for Grandmaster of the Calatrava and in 1493 (with the help of a Papal bull) they secured the Grandmastership to the Spanish crown, thereby ending the order's feudal rights and semi-independence. It is interesting to repeat that the Moors had met their final defeat early in 1492 (at Granada), and to note that the leading Spanish crusading order only survived its age-old antagonist by a single year. It was no longer indispensable! Thereafter, it turned more and more into an honorary and ornamental thing, no longer concerned with poverty, chastity, and monastic discipline, but it pertained to courtiership and royal favor. The original surcoat of the Calatrava had been black, but later turned to white, with the red cross also typical of the gallantly sinister Templars.

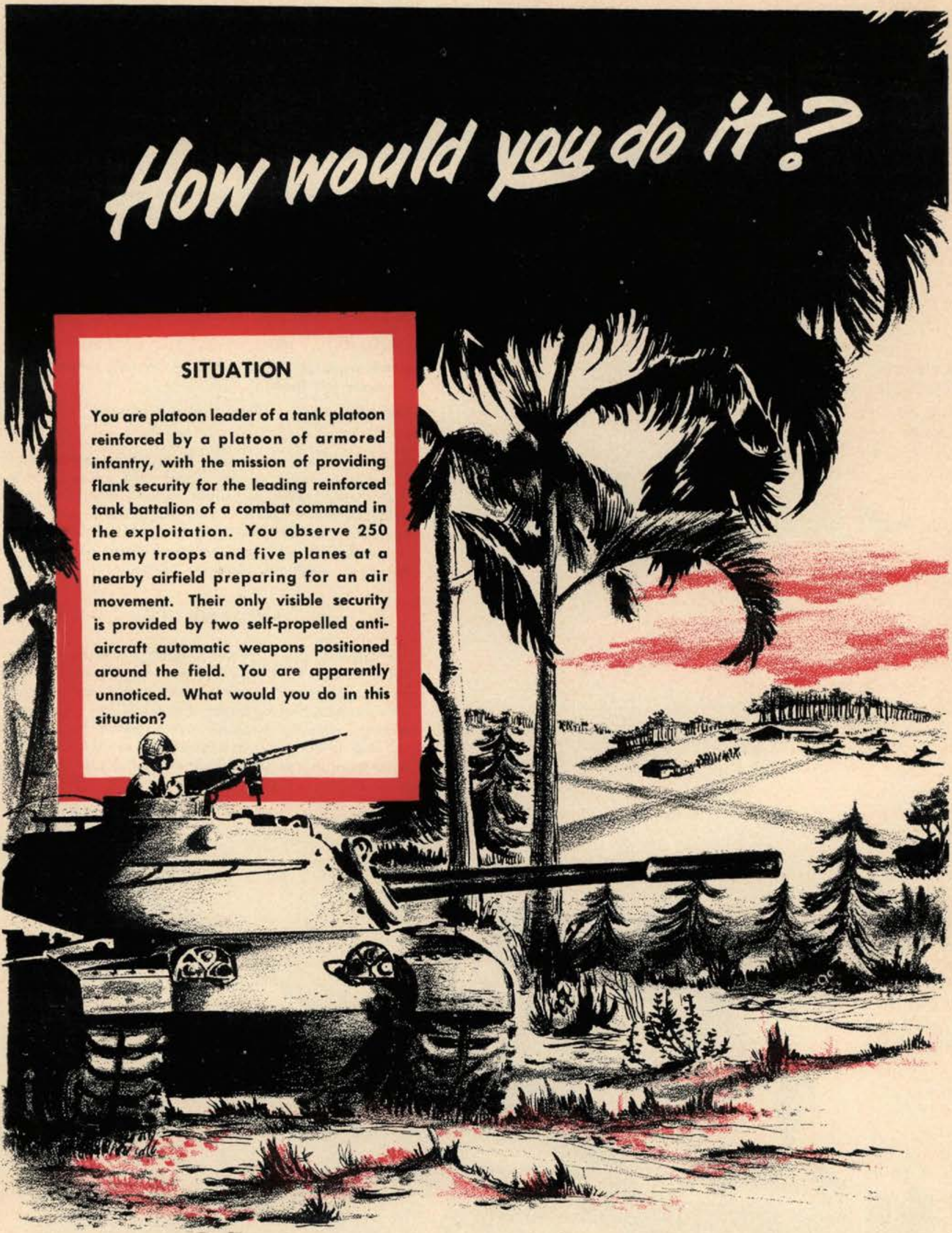
The Alcantara order was openly modelled on the Templars about 1176, with the usual vows entailed, of poverty, chastity, duty, and "eternal war" against the Saracens. Sometimes the Alcantara was known as the "Knights of St. Julian." It received the town of Alcantara as a special ward, this being an old fortified Moorish post in the province of Estremadura, and which has today perhaps 6,000 inhabitants. When the Moors were driven out, the Alcantara order moved triumphantly in, and did more than their share of fighting for Spanish liberation from the "green" Moslem yoke. Queen Isabella had a special dislike for the haughty knights, who alternately disagreed with the Calatrava, and united with the latter against the powers of the Queen, and the Pope awarded the Grandmastership to the Spanish crown (thereby taming and nationalizing the order) three years after the Columbus trip to the New World. The Alcantara then, like the Senior Calatrava, turned into an increasingly honorary and functionless organization, always feeling an inferiority complex towards the older Spanish order. In 1835, Alcantara finally was suppressed in the course of Spanish domestic upheavals.

The Santiago, or order of St. James of Compostella and of the Sword, was set up to defend the swarms of pilgrims thronging to the shrine of St. James at Compostella, in the far northwestern Gothic part of Spain; that is, in the province of Galicia. It was older than the Alcantara by a year, and was founded by some thirteen militant noblemen under Papal blessing. The Santiago, after which towns are named in Cuba and Chile, fought hard in the Saracen wars, and was especially rich and adept at feudalist politicking. But Ferdinand and Isabella, nationalizers and "ungrateful", coveted the Santiago possessions—towns and abbeys, etc.—and in 1493 (the bad year for Calatrava) the royal partners took over the properties of St. James, the Grandmastership passing subsequently to the crown via the route of Papal bulls. . . The Spanish Inquisition set up by Ferdinand and Isabella preyed indiscriminately on Moslems, Jews, *and* the "orders." Shades of the Templars!

And, in fact, the order of the Montesa—founded in 1317 by James II of Aragon, in Spain, was intended expressly to "take the place of the Templars after their dissolution." This it certainly failed to do, although it did fight the Moors along with the other knightly and saintly orders of the Hispanic wars. It is notable that the Templars were never persecuted in Scotland, and in Spain this "new" Montesa was endowed with the former Templar properties, as well as with the city and fortifications of Montesa in southerly Valencia. On and off, it acknowledged, not always willingly, the Calatrava as its feudal or monastic superior, but like the other orders, it was eventually "nationalized" and defunctionalized when the crown took over the Grandmastership. It later became a courtly and plushy order with two classes or degrees, ranking high in the all-European Social Register.

Up to 1914, military monasticism, converted into "ducal decorations," continued to thrive on the breasts of countless noblemen between the Highlands and the Sublime Porte. The finish of the Near Eastern, the Baltic, and the Hispanic Crusades had served to end the functional era—this, combined with the rise of modern national and non-feudal entities. But noble decorations themselves have been on the sinking side since the first Armageddon, and this despite a recent European Coronation concerning which one is permitted to have two minds. Meanwhile, in their day, with chain mail, three steeds, and a squire apiece, the praying and preying military monks struck some doughty blows, and have left behind them a memorable story and tradition.

How would you do it?

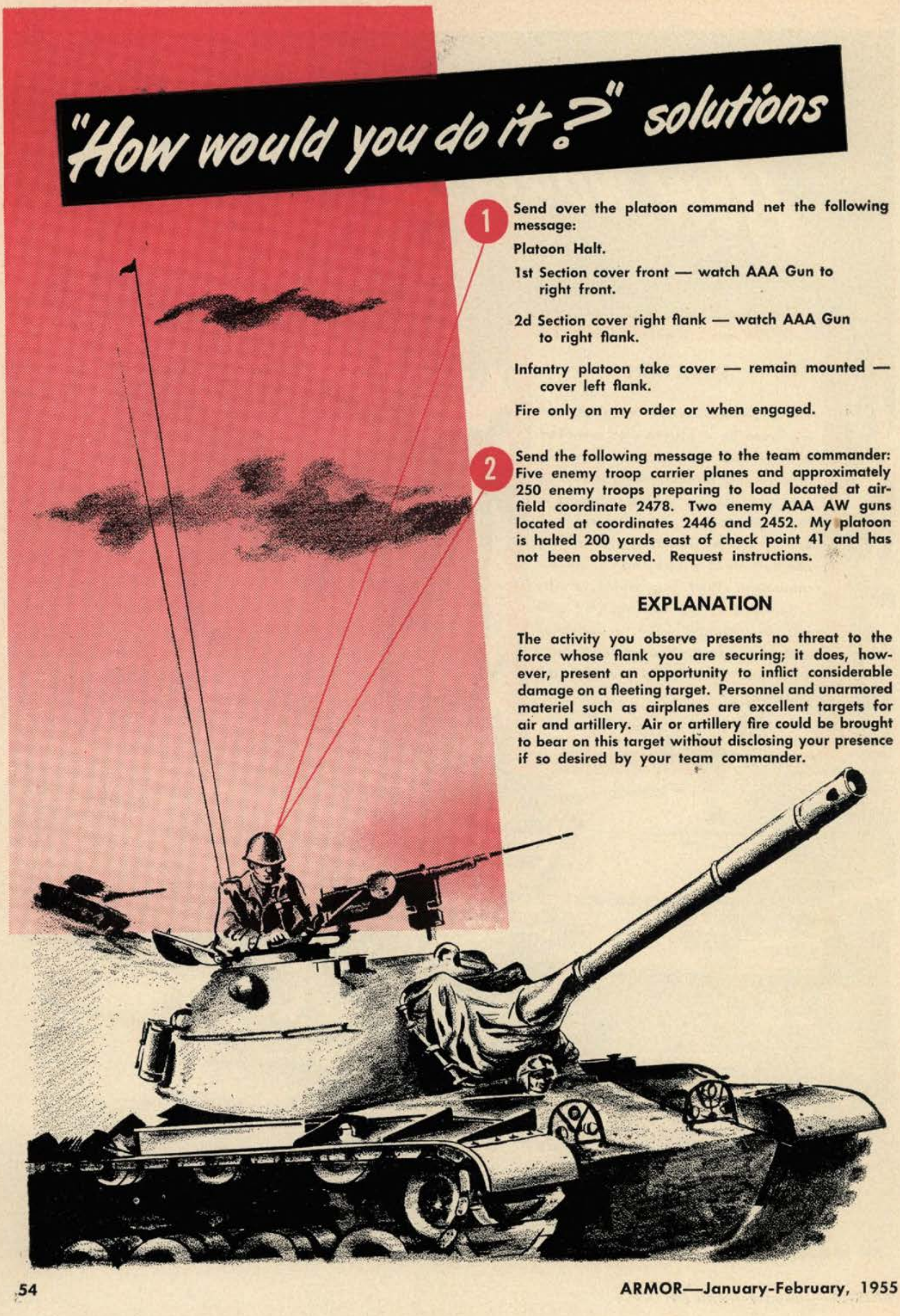


SITUATION

You are platoon leader of a tank platoon reinforced by a platoon of armored infantry, with the mission of providing flank security for the leading reinforced tank battalion of a combat command in the exploitation. You observe 250 enemy troops and five planes at a nearby airfield preparing for an air movement. Their only visible security is provided by two self-propelled antiaircraft automatic weapons positioned around the field. You are apparently unnoticed. What would you do in this situation?

AN ARMORED SCHOOL PRESENTATION AUTHOR: MAJ T F FLYNN ILLUSTRATED BY PVT P A CIANO

"How would you do it?" solutions



① Send over the platoon command net the following message:

Platoon Halt.

1st Section cover front — watch AAA Gun to right front.

2d Section cover right flank — watch AAA Gun to right flank.

Infantry platoon take cover — remain mounted — cover left flank.

Fire only on my order or when engaged.

② Send the following message to the team commander: Five enemy troop carrier planes and approximately 250 enemy troops preparing to load located at airfield coordinate 2478. Two enemy AAA AW guns located at coordinates 2446 and 2452. My platoon is halted 200 yards east of check point 41 and has not been observed. Request instructions.

EXPLANATION

The activity you observe presents no threat to the force whose flank you are securing; it does, however, present an opportunity to inflict considerable damage on a fleeting target. Personnel and unarmored materiel such as airplanes are excellent targets for air and artillery. Air or artillery fire could be brought to bear on this target without disclosing your presence if so desired by your team commander.

NEWS NOTES

The 27th Armored Division

Announcement was made recently by General Karl F. Hausauer, with the approval of Governor Dewey and Governor-elect Harriman that the 27th Infantry Division, New York National Guard, will be converted without delay to the 27th Armored Division, New York National Guard.

The announcement stated that the Guard's upstate Division was being converted after months of exhaustive study, in compliance with a request by the Department of the Army. The change is in line with the current Department of the Army policy to convert to armor wherever possible. Current thinking indicates that in time all infantry divisions may be reorganized as smaller units with a higher degree of mobility.

Major General Karl F. Hausauer, Chief of Staff to the Governor and Commanding General of the New York National Guard, stated that the conversion of the 27th Infantry Division will be one of the first such conversions of an organized National Guard Division in the United States. The Division is commanded by Major General Ronald C. Brock of Amherst, New York, and has units located throughout the State, exclusive of the New York City Metropolitan Area. Named the "New York Division," it has an outstanding military record in both World Wars, and this summer the Division broke the all-time Army National Guard attendance at field training records with 99.2 per cent of its personnel in camp for the two weeks period.

General Hausauer explained that the decision to make the change to armor was reached after a prolonged study of the feasibility of the conversion and after he was certain that the change to armor would greatly enhance the organization's value in case of an emergency within the State by reason of its increased mobility and striking power.

While the conversion of the 27th Infantry Division is the principal factor involved, other changes will be made to provide combat support units in the main, artillery, required in a balanced force as envisaged in current Department of the Army planning as well as the implementation of the On-Site Anti-Aircraft missions assigned to New York in defense of critical areas within the state.

This major reorganization, the General stated, is in accordance with current Department of the Army planning, in which the National Guard becomes the first line combat reserve, which is the mission of the National Guard as defined by Department of the Army Policies. New York can be proud that one of its divisions has been selected for this most important role in the new program of national defense.

The conversion will also greatly benefit the State by reason of the new modern equipment that will replace material now issued. Mobility and communication facilities will be increased so that assistance can be more quickly given to stricken areas within the State in case of emergency. The plan further disperses units under commanders located in the City of New York so as to enable them to move quickly into the metropolitan area for relief in support of the civil defense, should this need occur.

The historical section of the Department of the Army will approve the retention of all citations and battle streamers earned by units affected, so that background and traditions will not be lost. Numerical designation will, whereever possible, remain unchanged. Present regiments will become combat commands.

Two major units to be affected will be the 106th AAA Battalion at Rochester, which will be assigned to the division and changed to an Armored Field Artillery Battalion; and the 170th Field Artillery Battalion, located at Newburgh and Middletown, which will be transferred to the command of II Corps Artillery, the headquarters of which are located in New York City.

The New York National Guard already has units training at On-Site locations in the New York City area, which conforms to the National Anti-Aircraft Defense program in effect in 29 States.

Units of the 105th Infantry Regiment located at Glens Falls, Malone, Saranac Lake and Ticonderoga, and Co D, 108th Infantry, at Ogdensburg, will be converted to a field artillery unit of the type currently desired by the Department of the Army.

Another unit to be affected will be Co C, 108th Infantry at Rome, which will be assigned to the 3d Battalion, 101st Armored Cavalry Regiment and changed to a tank company, thus completing the reorganization of the latter Battalion. This regiment will then have one battalion upstate and two battalions in Greater New York. All other units will be assigned to the new 27th Armored Division.

Also to be affected in the troop allotment conversions will be New York City's 369th AAA Group and its elements—the 369th, 870th and 715th AAA Gun Battalions. These organizations will be formed as a Field Artillery Group, and three Field Artillery Battalions holding tentatively, the same numerical designations, and they will be attached to the II Corps Artillery, commanded by Brigadier General Ralph F. Schirm of New York City.

The addition of these units will provide II Corps Artillery with two artillery groups of three battalions each, in addition to the currently assigned 187th Observation Battalion.

New equipment issued, as well as modification of armory facilities and the acquisition of training cites will be borne entirely by Federal appropriations.

Washington Chapter to Hold Meeting in February

The Washington Chapter of The Armored Association will hold its next meeting on the 10th of February at the Naval Gun Factory. It will be a dinner meeting commencing at 7:00 P.M. The principal speaker will discuss Tactical Air Support of Ground Troops. Also a brief résumé of the annual meeting being held at Fort Knox in late January will be given. Any officer interested in attending may get additional information by contacting Major James M. Madden, Armor Branch, CMD, TAG.

1st Armored Division Association to Hold its 8th Annual Reunion

The 1st Armored Division (Old Ironsides) Association will hold its eighth annual reunion in New York City at the Hotel New Yorker this coming Summer. The dates for the meeting are July 1-3, 1955. For further information please contact Mr. Sal Marino, 215 Del Balso Boulevard, Wappingers Falls, New York.

Colonel Newton Honored

Colonel Henry C. Newton, who in his fabulous pre-World War II architectural profession built churches and various ecclesiastical buildings in and around California, recently became the recipient of the medal of the "College of Fellows"—the highest award given by the American Institute of Architects.

The Institute—the national organization for the nation's 100,000-plus architects—restricts membership in the "college" to those who have achieved extraordinary distinction in design, and have contributed greatly to the public and to the profession.

The Illinois-born architect's ecclesiastical and residential creations have been the subject of nation-wide interest since the building of his first church in 1925.

Currently the Director of Instruction at The Armored School, and one of the military's leading authorities on officer training, Colonel Newton's career has been marked with two-fold success; civilian and military.

Third Armored Division Association to Hold 8th Annual Convention

The Third Armored Division (Spearhead) Association will hold their 8th annual convention in St. Louis, Missouri at the Jefferson Hotel. The dates for this annual get-together are 28-30 July 1955.

Any inquiries should be addressed to Mr. Paul W. Corrigan, 80 Federal Street, Boston 10, Mass.

Ed. note. *We try to keep abreast of the various Armored Division Associations, their addresses, the dates of their conventions and the current list of office addresses. If this information is forwarded to us in time it will appear on these News Notes pages.*

The 11th Armored Division Association

The 11th Armored Division (Thunderbolt) Association has moved their headquarters to the following address: 118 Thorne Street, Jersey City 7, New Jersey. The Secretary-Treasurer is Mr. K. W. Hanlon. The division association also maintains a Washington address at 700 Hill Building, Washington 6, D. C.

Tank Turret Contract

Half of the cast steel turrets for Army medium tanks to be produced in 1955 will be made by Union Steel Castings Division of the Blaw-Knox Company, Pittsburgh, Pa. The work is on a subcontract with Chrysler.

The multi-million-dollar contract marks the continuation, rather than the beginning, of tank turret casting and machinery. Now nearing completion is a contract with the Cadillac Division of General Motors for medium tank turrets, which will free more than enough production facilities to handle the new order.

Germany Considering Import of Tanks

Recent newspaper reports have stated that the West German Government is considering the import of tanks and heavy weapons for its future military establishment. The plan is designed to prevent burdening the prosperous civilian economy with a costly but marginal armament business.

Officials concerned with the planning of the armament program favor the import idea.

* * * *

The reluctance to manufacture heavy weapons is based almost exclusively on economic reasons. The West German planners contend that it would be folly to permit any cutback in civilian production to make room for armament orders. According to their view any reductions in civilian production would result in a lowering of the standard of living and a retreat in the world markets where West German industry has gained strong positions.

The major economic effort of the Government, the planners say, should be to encourage the further expansion of civilian production, a higher standard of living, and an even greater place in the world markets.

They declare it would be less costly in the long run for West Germany to purchase heavy weapons abroad. Such a policy would leave civilian industry intact. Other powers, the planners say, might derive immediate profit from armament production but would lose their competitive position in the world markets.

This is the theory for the opposition to the manufacture of heavy weapons or the creation of a specialized armament industry against which the West German economists are particularly vehement.

The most the official economists would grant would be the absorption of armament orders on a freely competitive basis without manpower controls, or a system of production priorities. They reject out of hand any proposals in which economic controls are implicit.

The official economists are in a quandary as to the planning, execution and financing of the armament program. Planning has been blocked until the North Atlantic Treaty Organization and the projected Western European Union decide on types and quantities of armament.

Military Brass Yields to Stamina of Steel

Another military tradition has fallen in this age of modern warfare.

After nearly a century of using brass in the mass production of cartridge cases, the Armed Forces have made an almost complete conversion to steel.

Army and Navy Ordnance concluded as early as 1947, says *Steelways*, the magazine of the American Iron and Steel Institute, that cartridge brass could never again be produced in America in quantities large enough for another major war. Steel costs about half as much as brass and the sturdier, steel-cased shells can take more of a roughing up in shipping and storing. In the field, supply troops and gun crews can move more of the new ammunition with less effort. Nine 75mm steel-cased shells, for instance, weigh roughly only as much as six made of brass.

The first attempt to use steel as a substitute for brass was made by German technicians in 1918 when the Kaiser realized his brass supplies were dwindling. In the late '30's and early '40's the Nazis took up the Kaiser's lead in earnest. By 1943, monstrosities like their 82cm. Gustave Gun were hurling 14,000-pound projectiles from steel cartridge cases for delivery at the Russian bastion of Sevastopol.

At that time, the United States was also running low on brass because of heavy copper exports before the war. With the help of development work by steelmakers, steel-cased shells had been fired before the outbreak of World War II. But we were able to convert only 10 per cent of our cases to steel by war's end.

In the late '40's, Army and Navy Ordnance started where the Germans left off to make steel a workable replacement for brass. They had the situation in hand and a mass production line rolling by 1950.

Today the output of steel-cased ammunition is being built up through both private plants and standby plants owned by the Federal Government but operated under contract by private companies.

Another Armored Division!

News releases recently stated that the 48th Infantry Division (The Georgia National Guard), would soon be converted to the 48th Armored Division. This brings the total number to six Armored Divisions out of an overall number of 27 National Guard Divisions.

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THE UNDEFEATED REBEL

GENERAL JO SHELBY. By Daniel O'Flaherty. 437 pp. University of North Carolina Press, Chapel Hill, N. C. $6.00.

Reviewed by
JOHN K. MAHON

CONSIDERING the flood of books that threaten to engulf the conscientious reader, it is sensible to try to ascertain why an author presumes to add one more to it. If his motives prove worthwhile his book is the more welcome. Judged for his apparent motives Mr. O'Flaherty comes off well.

Feature Reviews Exclusive with ***ARMOR***

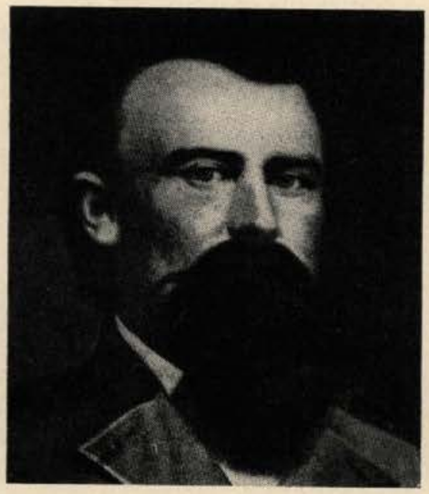
In writing *General Jo Shelby,* I will gamble, he intended to have, and did have, lots of enjoyment. This is commendable, especially since the enjoyment rubs off on his readers. Another object was to revive the memory of an outstanding individual who has been undeservedly forgotten. Since it is one of the chief ends of the study of history to redress the almost uniform injustice of life, the author's second aim is even purer than the first.

It is true that Major General Joseph Orville Shelby, CSA, has not received merited recognition in our time. It is equally true that hundreds of other able commanders in the Civil War have been likewise slighted; so we have to ask, why this particular man? The author has a quick answer; Shelby, he says, was one of the great cavalry handlers of the war. His con-

The Author

Daniel O'Flaherty attended the Washington and Lee University and St. Lawrence University. He has worked for newspapers in New York City and Virginia. During the War he worked for NBC and CBS in New York. He returned to Richmond to research for this book and is presently engaged in work on another book, a history of the Civil War blockade, which will be entitled THE GOLDEN SEAS.

The Subject



Major General Joseph Orville Shelby, C.S.A., was born in Lexington, Kentucky on the 12th of December 1830. He died in Adrian, Missouri on the 13th of February 1897. He was buried at Forest Hill Confederate Cemetery, Kansas City, Missouri, at his own request. This location was near the site of the battle of Westport where he fought his Division. His last wish was: "to be buried with his men."

The Reviewer

John K. Mahon graduated from Swarthmore College and received his Doctorate from UCLA. During World War II he enlisted, and completed his service as a Field Artillery Captain. He spent 3½ years with the Office of the Chief of Military History. He is the author of "A History of the Organization of American Infantry." He is presently Assistant Professor of History at the University of Florida.

tention is based on the testimony of cavalrymen who opposed Shelby, principal among them General Alfred Pleasanton, an outstanding Union performer. I cannot say whether the subject belongs on the tall pedestal whereon his biographer has fixed him, but this much corroborates it; I have never seen the writing of any contemporary, who bothered to mention him at all, that did not allude to Shelby as a man of uncommon ability. In any event, O'Flaherty is an eloquent advocate who makes a splendid case for his subject and entertains the reader into the bargain.

Presuming that readers of ARMOR want it so, this review will dwell mostly on that portion of the biography dealing with the Civil War, a slim section of 195 pages. It deals with a little known flank of the conflict, the struggle for Missouri (Shelby's state) and for Arkansas. Because the Trans-Mississippi theater has received very little study, most readers will welcome the information on it to be found herein.

Jo Shelby was a genuine leader of men. Of importance to us, in an era that starves for great leaders, is how he got that way. The answer is not very encouraging if we are seeking to reproduce the conditions that made him, for they vanished with the Old South. Shelby came from one of the few thousand ruling families of that extinct culture. He was accustomed to opulence and to deference. From his teens onward he owned a Negro boy, Billy Hunter, whose object in life was to relieve the master of disagreeable drudgery. Shelby and others like him—for example John Hunt Morgan who was a boyhood neighbor and crony—expected to stand in the forefront of affairs because society was geared that way. They were trained to it. Jo's stepfather, Benjamin Gratz, drilled him in urbanity. "A man who sits on top of the world," he said, "is there because he will not let the world sit on top of him. . . . He is the master of every situation." Such a privileged place in society as they occupied made leaders of Shelby and many of his peers.

In our time, the Services take officers, once commissioned, and place them in something like the favored position enjoyed by the privileged class of the Old South. The trouble is (with the possible exception of the service academies like West Point) this envelopment occurs too late to mold their character; hence if they are not leaders already it will not make them so. What is more, the climate of thought which welcomed the leadership of gentlemen because they were gentlemen is not only gone but very unpopular. It follows that we need a means more in keeping with our love of equality for buttressing the authority of combat leaders. Until that sort is found the Services will continue to have grave trouble keeping the ranks full. A natural leader like Jo Shelby did not need the help of military courtesy. He could fraternize with his men one moment and then cut them off curtly the next; but they followed him anywhere. His biographer says they did so because he looked like somebody, because he let no man impose on him, and because he soon showed the soldiers that he knew how to make their efforts count. It may be that American society of 1955 can produce natural leaders as well as the Old South. If so, they will be helped, I think, when the gulf between them and their men is made less wide. If the truth is that military etiquette is devised to sustain officers who are not natural leaders, that fact ought to be recognized and stated flatly. Then the search for a way to attract natural leaders should be intensified.

Shelby's lack of training as a cavalry commander, coupled with his success at it, also makes the reader pause and think. If Shelby were alone in this there would be little to think about, but he was not. Like him, Morgan and Nathan Bedford Forrest, and even Phil Sheridan, were not trained as cavalrymen. Like his, their training consisted in being able to ride and shoot when they took command. Concerning Shelby, the author says that he was a born cavalry commander who had a genius that did not need time to mature. If this is true, one wonders how many born commanders served in the ranks in the last war because they had not gone through the assembly line of training. Even taking into account the heightened intricacy of modern war, are not the attributes of a skillful field commander about what they were in Shelby's era? Is it not possible, if this is true, that we attach too much importance to training and too little to uncommon aptitude?

Forrest

Shelby had that quality in large measure which no commander can be without and be important, that is audacity. This is illustrated in the recruiting junket he made in July 1861. With the 100 men of his company he bypassed the Union Army at Springfield, penetrated 120 miles into the Federal rear and turned up in his home town of Waverly to raise men. The whole area swarmed with Federal garrisons, but his was the only Confederate force within 200 miles. When it suited him, he slipped back through the enemy lines and returned to the main force under Sterling Price. While recruiting he sought eighteen-year olds because they were heedless once in motion. Since he had shrewdness mixed with his audacity, he preferred to rely on it to restrain them rather than to have them halt themselves because of the caution that often governed older men.

Shelby did all he could to keep his men supplied. This was difficult, and as the war lengthened, more and more supplies, if there were any, had to come from the enemy. Much of the time his troopers wore Union blue, but always they carried a sprig of sumac in their hats to set them apart. By mid-1862 men were proud to be in Shelby's outfit, a pride the colonel fostered. His unmistakable leadership was the backbone of their esprit, but the sumac, together with some colors given them by damsels, and even a mascot, a bear named Postlethwaite, added something to it.

More care was given to the horses than to the men, for they supplied mobility, the indispensable quality. Shelby saw to it that his horses were fed regardless of human suffering. In enforcing this he was rougher on the civilian population than other Confederates west of the Mississippi. This was so because he knew that cavalry action in his theater was hampered more by the weakness of the mounts due to hunger than by any other difficulty. He was determined that his actions would not be so hamstrung. The horses of his command paid for special attention by bearing a heavier burden. Many were ridden to death if the situation required it, but that was not uncommon. It was the use of mounts to haul wagons on raids that was different. He strove to have enough saddle horses to pull the few wagons and cannon taken along on raids and to haul out captured ones. They contributed more speed to his movements than the usual draft animals could.

While on the subject of raids, it should be said that the celebrated cavalry commanders of the Civil War habitually made deep slashes into the enemy rear areas, there to disrupt operations in any way they could. (They passed this tactic on to Armor.) Shelby's stature as a raider is equal to the best. He brought off his masterpiece during September and October, 1863. In that prodigious raid his 800 men travelled 1,500 miles in 34 days through Missouri which was filled with 50,000 Federal troops. They killed nearly as many Federals as they numbered, captured 300 wagons, 40 stands of colors, and vast stores of supplies. In addition, the raid detained 10,000 Bluecoats who were wanted in the vicinity of Chattanooga. This raid and many others like it called for superhuman endurance from the men. They starved and slept in the saddle, but so did their commander who seemed never to wear out.

Most conspicuous of the techniques developed by cavalry in the Civil War was that of moving to the battle zone on horses and then dismounting to fight. That technique was imposed on American horsemen by the increased deadliness of firearms but, although guns were equally deadly overseas, Europeans did not see what was necessary even after our war. They had not, in any event, learned the technique in the Austro-Prussian War begun the year after our Civil War ended. Shelby was among the first Americans to use it. He waved his men off their mounts at the Battle of Carthage, 5 July 1861, and used them as infantry. Throughout the rest of the conflict he did the same when circumstances warranted it. On the other hand, he used the mounted charge against foot troops—an extremely dangerous technique—more often than was usual in that war. For instance, at Prairie Grove, Arkansas, 7 December 1862, several of his companies rode into seasoned Federal infantry formed in battle line. This was repeated at other places, but never where it meant decimation of the command. The commander ordered no charges like that of the "Light Brigade"; his judgment was too fast and too accurate for such mistakes.

Sheridan

Not bound by school solutions, Shelby proved inventive. He nearly always tried to decoy the opposition into an ambush and most times he succeeded. More remarkable was the technique devised to make his small force (seldom more than 1,000) effective in rear guard actions. At Cane Hill, Arkansas in December 1862, his problem was to hold five Federal brigades at bay with just one of his own. His mode of doing this was to place the thirty companies along the road, each an eighth of a mile behind the other. Every company held its fire to the last minute, poured it into the enemy advance, leapt to horse and dashed away to form again behind the last one. It worked well.

As truly as Jo Shelby has been unjustly forgotten, equally truly, our biographer insists, it can be said that the South misunderstood the importance of the Trans-Mississippi region where his subject fought. That theater, he says, became a dumping ground for incompetent top commanders from both sides, the South always going the North one better. Shelby saw the importance of that region, not only as a bread basket but also as an avenue through Mexico to the supplies of Europe. Abraham Lincoln saw it too; but, even so, the area remained a twilight zone. O'Flaherty feels that if chance had set his subject in any other theater, his name would have ranked with Stuart's.

There are a few dedicated souls who pick up the *Official Records* and browse in its 128 volumes as others do in mystery tales. No one who does this could fail to be brought up short by the prose in the reports of General Shelby. This prose alone may have led Mr. O'Flaherty to his subject. It is revealed that the General did not write it and that his friend, Major John N. Edwards, did. The following sample illustrates the style and at the same time narrates an incident for which Shelby was once well known:

> It was a beautiful moonlit night. White fleecy clouds hovered over the sleeping river, over the doomed craft with all her gala lights in bloom, and over the crouching lines of infantry and the yawning cannon. The silence was broken only by the measured tread of the sentinels and the deep striking of the time bell. Just as the white hand of morning put away the sable clouds of night four pieces of artillery sent their terrible messengers crashing through the boat. Then the infantry opened with terrible effect, and in ten minutes the *Queen City* was a helpless wreck upon the water, her captain surrendering unconditionally.

In the 1890's when Shelby needed money and was being considered for appointment as U.S. Marshal, some-

SHERIDAN

The Inevitable

by

Richard O'Connor

Out of four great Union commanders in the Civil War the youngest, the most aggressive, the most versatile and the most uniformly successful was Philip Henry Sheridan. Bold yet cautious thorough yet unexpected, Sheridan continually hit the Confederates where it hurt. They couldn't outguess him, outgeneral him, outfight him—and they couldn't avoid him. No onwer they called him Sheridan "the inevitable." He outwitted and outfought the Southern idol, Beauty Stuart, at Yellow Tavern, smashed the Confederate horsemen and killed Stuart. In the Shenandoah he soundly defeated Early in a series of battles, culminating in his famous ride to turn the Confederate surprise attack at Cedar Creek into a decisive Union victory. At Sailor's Creek he cut out and gobbled up a large segment of Lee's disintegrating army. In the end, with infantry as well as his cavalry, he was out in front of Lee and astride his last escape route.

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one found this literary flight, and others like it, in the manuscripts from which the *Official Records* were being prepared. He attempted to turn it against the General, but others opposed him, believing that such writing embellished the stolid record of war. The defenders of Shelby won out and he was appointed, but it turned out that he had never even read the reports, trusting his friend Edwards to handle such drudgery.

General Jo Shelby highlights once more the startling fighting ability of the ragged Confederate troops, an ability which so far is without a convincing explanation. In the same manner it retells a few of the moments of chivalry that illuminated this grim war. For example, when General E. B. Brown of the Union Army, clad in full regimentals and elegantly mounted, rode the entire length of his line, which was within rifle range of Shelby's Brigade, the Confederates held their fire in admiration of his audacity, for no one had dared try it in front of them before. Someone cried, "Don't shoot, let that man go!" so Brown made his promenade unmolested. The men of the South carried this type of romanticism to its extreme. O'Flaherty says the cavalrymen fought first for food and second for the adulation of the fair. It sounds like something out of the era when knighthood was in flower, and it was. There was a strong element of it in the gallant fighting the Confederates did, even the lowest born among them. This partly accounts for their willingness to follow "Beau Sabreurs" like Stuart and his Trans-Mississippi counterpart, Jo Shelby.

Like most narratives of combat, the battle accounts told herein do not carry the reader onto the battlefield. It is extremely difficult to follow the actions in detail. One reason is the absence of facts about the formations in which cavalry attacked and defended. In other words, none but the most careful students will be able to envision what Shelby's line looked like when it attacked mounted or when formed for foot action. This deficiency is not peculiar to *General Jo Shelby* but is made more acute therein because there is only one map for the whole book and not even one diagram of a battle.

I think O'Flaherty's harsh judgment of Confederate General Earl Van Dorn requires at least partial modification. I have not read widely enough to make that adjustment myself, but must say that other writers have rated Van Dorn rather high. O'Flaherty also criticizes General Halleck for the following telegram to General Curtis, "You know your own condition better than I do, and must decide about this ["this" referring to a projected movement]. At so great a distance I can only advise." The biographer considers that Halleck avoided his responsibility with such a directive, but it seems to me, on the contrary, that he showed excellent judgment in leaving the commander on the ground wide latitude.

Price

We now leave the Civil War to make brief comments on the remainder of the biography. From the standpoint of enjoyment in reading, I rate this section as equal to the other, for Shelby's postwar career was full of drama. In addition, this portion helps to illuminate the doings of some Confederate leaders after their cause was in ruins.

Shelby organized those men of his command who would go and, uninvited, marched into Mexico. His followers were undecided whether to throw their force to Juarez or to Maximilian but, faithfully stumbling after the romantic will-o'-the-wisp which they followed so much, they picked the Emperor. Several scraps blocked their way into the anarchic country, scraps which cost the lives of two or three score of the veterans who had survived the war. Their deaths were meaningless, and so was the excursion, for, once they reached the capital, they found the Emperor did not want them. Nevertheless, Shelby, and some of his followers, lingered in that country trying to put down roots, but when the Empire fell the Juaristas forced them out. Only then did they go back to the United States.

Once repatriated, the General returned to Missouri where gradually he became a legend. Legend or no, his affairs did not prosper for he was in no wise a business man. Besides, for years he was limited by the restrictions of Reconstruction to gentleman farming. In time this was modified. In time too his attitude softened. There was little antagonism among old soldiers, and in 1892 Shelby had a chance to meet Phil Sheridan whom he had eluded when he slipped into Mexico nearly thirty years earlier. They had a long talk, conditioned by mutual respect, and during it Sheridan seems to have shown the aging Confederate a new vision of a nation united. From that time on, Shelby ceased being only a Southerner. Soon, as ever choosing a lost cause, he began vociferously to oppose Bourbon control of the South. This appeared to his peers as betrayal of the burning cause, and brought one of his old subordinates to explode to his face: "As a soldier none was ever braver or more chivalrous; as a man none was ever more honorable; as a friend none was ever truer; but politically you are the damndest humbug. . . ."

Stuart

As if the Mexican expedition was not enough to give postwar color to a vivid life, the notorious James Brothers made their appearance. Both boys had served in Shelby's command and Frank had saved the General from capture at Prairie Grove in 1862. In consequence, Shelby championed them when they were in trouble. He finally appeared as a character witness at the trial of Brother Frank in 1893. Every reader will chuckle over the testimony of the ex-commander, a bit "stewed" and smelling of bourbon, when called on to answer questions in a way that made him want to duel somebody. In any case, the James Brothers endeared him to Missouri—whose special villains they were—but damaged his reputation elsewhere.

A few sentences about the mechanics of the book will bring these comments to a close. O'Flaherty employs a few techniques that I do not favor, but they are admittedly a matter of taste. One is to review the career of his subject at the start, and then go back to fill in. Another is to imbed footnote material in the text, for example, ". . . according to the Blair papers in the Library of Congress." Also, the chapter on the *Mexican Times* (a newspaper that John Edwards edited in Mexico City while Shelby was there) seems to me to have been forcibly interpolated into the story. It could better have been published elsewhere as an interesting article. Continuing in the critical vein, there is only one map and one picture included where more of both would have helped. Finally, there are a very few typographical errors which slipped by the proofreaders, for instance on pages 92 and 304.

The points raised in the critical paragraph just completed are not of any consequence. They appear at all just to relieve the reviewer of the stigma of having missed them. The impact of the book is overwhelmingly in the other direction. It is a good biography! Written gracefully, it holds the reader's interest from first to last. In addition, most students of the Civil War can learn something from it, and any general reader will be highly entertained.

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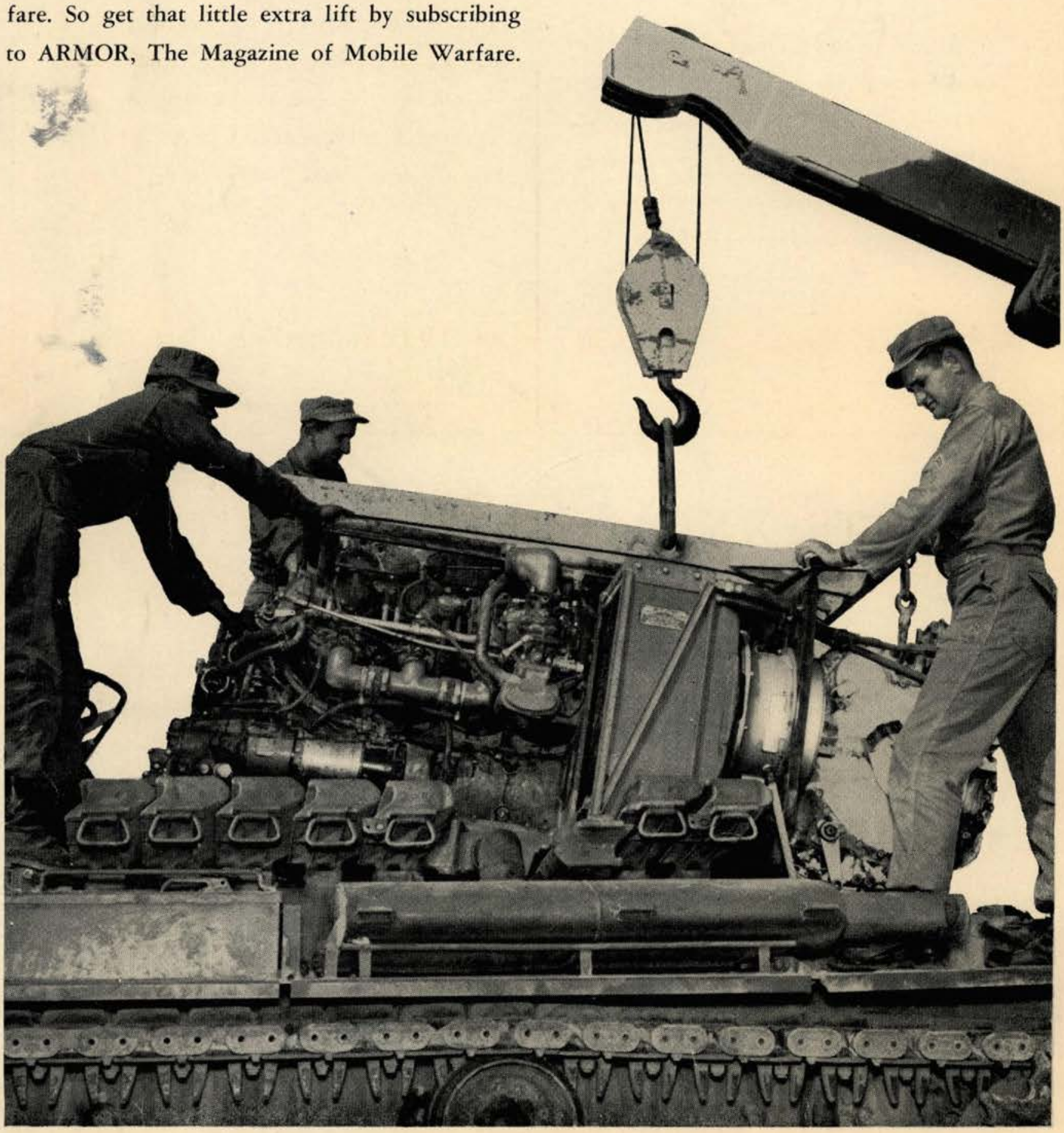

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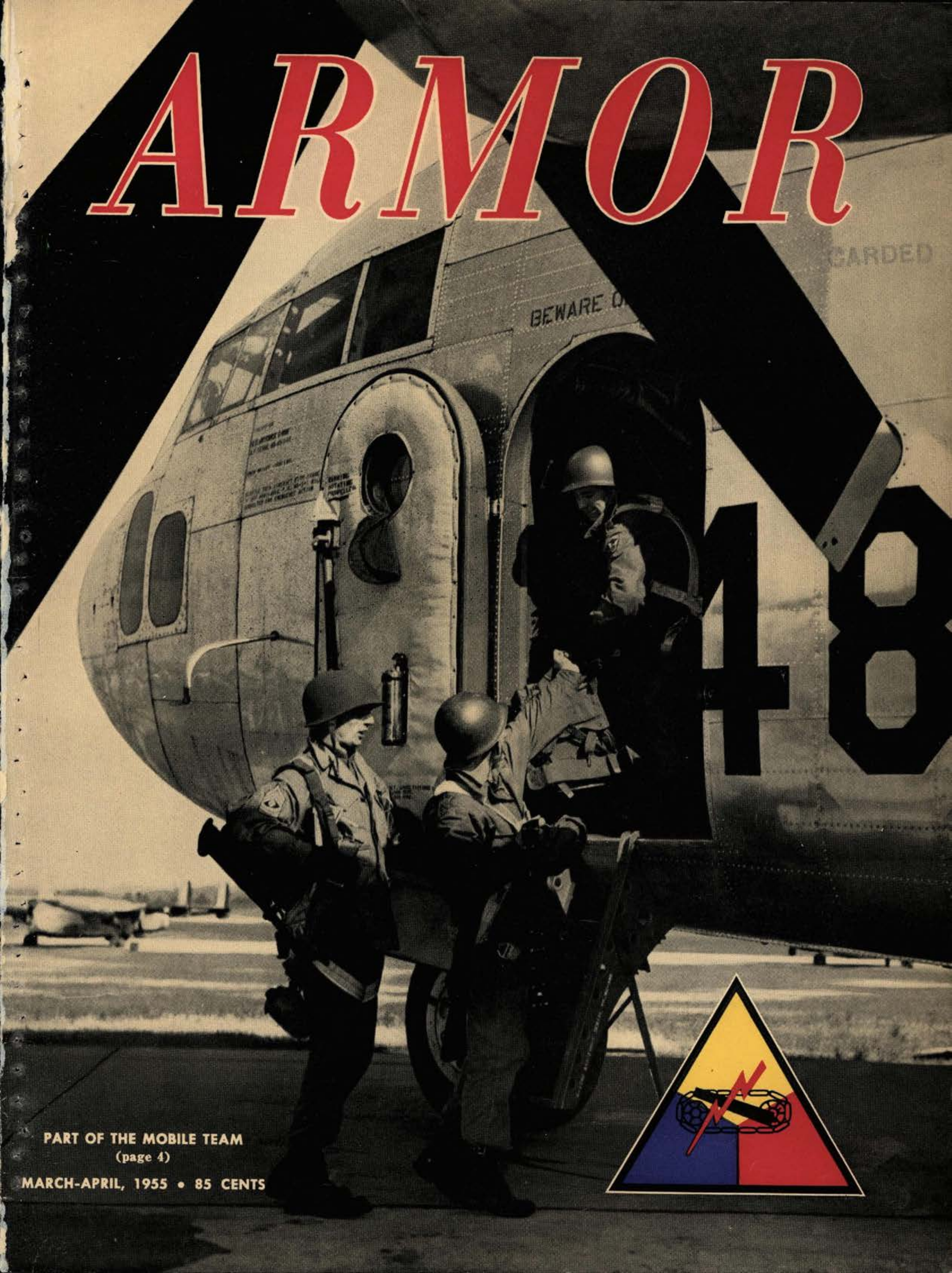

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LETTERS TO THE EDITOR

A Student Chapter

Dear Sir:

An informal survey has revealed that there is, in the armored branch of the Reserve Officers Training Corps at the Ohio State University, a strong desire for an extracurricular organization of armored cadets.

As a representative of the interested cadets, will you please supply me with information about any such organizations which might be under your Association sanction? If there are no such organizations, would your Association consider granting a student chapter charter to a cadet organization within the armored branch here at Ohio State University?

Any information that you could supply would be appreciated.

LEWIS L. SHEPHERD
MS III Cadet (Armor)
Ohio State University
Columbus, Ohio

• *ARMOR, as such, does not sponsor local chapters. However, all information concerning the local Washington chapter will be furnished as soon as we close this issue for press. Whenever there is interest shown by cadets or groups that are not near a local chapter such as the one here in Washington we are most desirous of assisting them in any way whatsoever.* ED.

Chivalry

Dear Sir:

The article, "Of Knights, Armor and Crusades," by Dr. Shaw in the January-February issue of ARMOR was very interesting. Perhaps some of your readers would be interested in knowing that some of these very ancient orders are still active and perform the good works of Knighthood in this day.

The Teutonic Order is one of the very old orders still active. Like its English opposite "the Knights of St. John of Jerusalem" the Teutonic Order has long ago lost its warlike character. In Napoleon's time the order was finally reduced in power and became a fief of the Austrian Empire. Since Napoleon's day the principal activity of the order has been the performance of ambulance and hospital work.

On 30 December 1954 the Grand Master of the Teutonic Order died in a nursing home in Merano, Italy. H.I.H. The Archduke Eugene of Hapsburg lived to the age of 91 years and was a link between our time and the past. He bore the splendid and historic title "Hoch und Deutschmeister" and as Grand Master of the Teutonic Order led them in their performance of good works, especially in Austria.

It is good to know the historical background from which many of the military customs and traditions have sprung.

Although Dr. Shaw gave many instances of the troubles and problems which these orders suffered they also made a number of very worthy contributions to European civilization as well as doing service to hundreds of the common people. We often recall the evils and the unusual because they are for some reason more exciting. We might well remember that these orders gave to our language the word that best honors their past acts, and we hope will be with us always, *Chivalry*.

CAPT. BERNARD G. ELFERT
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More on Knights in Armor

Dear Sir:

Your article in the January-February 1955 issue of ARMOR magazine entitled "Of Knights, Armor, and Crusades" by Dr. Roger Shaw was very interesting reading and very timely inasmuch as it fell in with a program of combined recruiting and orientation that our own CC Hq Company is now in process of accomplishing.

The picture above shows a bulletin board set up by this unit with the original pictures when it was initiated. Set in the main lobby of this station with the pictures changed from time to time depicting Armor in all stages of history from latest development to the earliest beginnings, it orients our personnel by a gradual process of "osmosis."

Capt. Wesley V. Banse

Hqs CCA
50th Armd Div., NJNG

What I Would Have Done?

Dear Sir:

I have read Major T. F. Flynn's article "What Would You Do?" in the January-February issue of ARMOR and I cannot agree. I am an Infantryman and have had little Armored Training and experience, but what training I have had would not allow me to employ the reinforced platoon like it was indicated in the article. I do wish that I could get Major Flynn to explain to me why he would employ the reinforced platoon like he did, explaining in more simple terms so that I may understand the facts of the employment of Armor. I would profit by his experience and training; so I have written this letter of "What I Would Have Done." By this the Major can point out my errors and errors other junior officers might have made.

The first thing that I would do is to call the other tanks and the Armored personnel carriers informing them of my decision to attack the airdrome and then I would explain the method of the attack. I would give my reinforced platoon the mission of complete destruction in order of: the two SP AAA Automatic Weapons, the enemy personnel, the five aircraft, the partial destruction, as time would allow, of the communication network, the air traffic control, the hangars, the troop billets and the valuable equipment.

Second, I would give each tank and personnel carrier their specific missions: two of the tanks would proceed at high speed attacking the two SP AAA Automatic Weapons: the personnel carriers would proceed at high speed with the other two tanks attacking the enemy personnel. Upon completing the primary mission they would destroy the aircraft, then the airdrome. The platoon leader would go with the advancing units directing and controlling the operations and attacking only the targets that are threatening the operation. Upon a prearranged signal the units would disengage and withdraw from the action. A call would then be made to the next higher command informing them of what I have done.

The reason that I would attack would be from the Estimate of the Situation that I took. First, my mission was flak security of a larger combat command in the exploitation, the last word being a key word. Second, this situation causes but one course of action as I see it and that is to attack. The enemy has not observed my command and they are busy preparing to get away. No doubt they would have most of the heavy equipment loaded or dismantled, broken down into loads, etc., and would not be ready to do combat with Armor. In fact I doubt if they could even fire more than several rifle shots before they would be overrun. By not being seen would mean that I would have on my side the element of surprise. Armored combat is characterized by aggressive action combined with speed and surprise. A massed tank attack of ten tanks would have a great psychological effect upon the enemy. Self-preservation replaces the sense of duty, temporarily. Third, I could call for help. But, while help was on the way the enemy forces may escape, only to fight again another day when they would have the upper hand.

The only thing that I could ever do is attack. If I lost then I was a fool but stop to think, would I lose? If I won look at the prize, and it might be worth a few Bronze Stars and maybe a Silver Star or two to the command.

Capt. C. W. Smith

321 Napier St.
B. V. P.
Monterey, Calif.

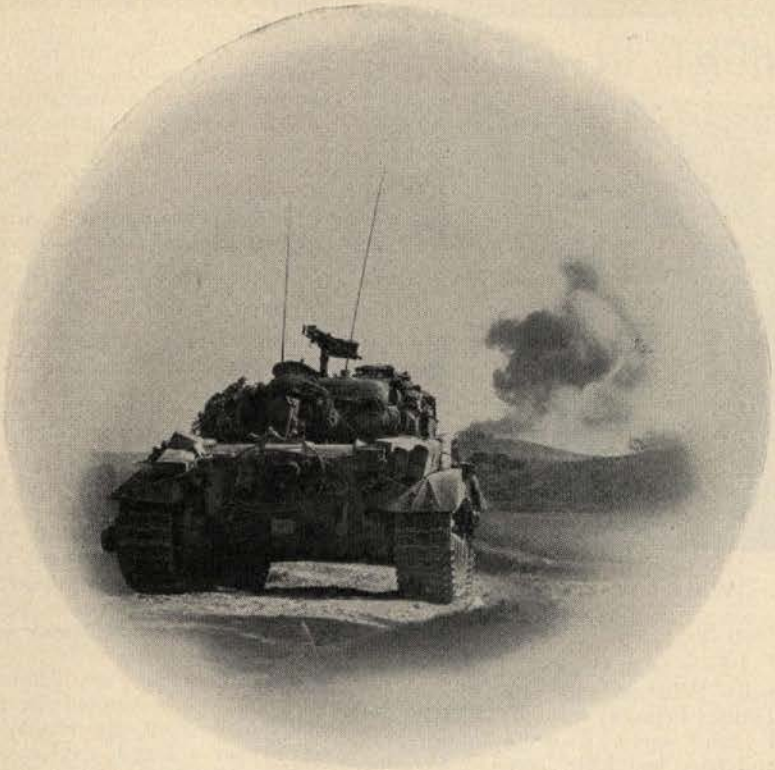
- *Monday morning quarterbacking is a popular pastime in the military as well as the sporting world. In all fairness the original letter was forwarded to Major Flynn for his comments. Regardless of who is right we have accomplished our aim by provoking some constructive thought.* Ed.

THE COVER

This Fairchild Aircraft Photograph, taken by Mr. Dan Frankforter, shows the 511th Airborne Infantry Regiment, 11th Airborne Division preparing to load into a Fairchild C-119 Packet in Tennessee prior to Exercise Swarmer. Airborne troops, working with Armor, make a powerful one-two punch for the ground force tactical commander.

ARDED

by CAPTAIN EVERETT C. ROYAL



Appreciation for other branches o
nical services is a must for all tact
they serve. Better understanding
enhance your chances of success. T

The Team of ARMOR and A

CONCENTRATE to fight—Disperse to live. That will be the formula for victory in an atomic war. In order to fulfill the requirement for rapid concentration to exploit the paralyzing effects of our atomic weapons and then be able to rapidly disperse before the enemy can effectively employ his own against us, we must utilize forces possessing a very high degree of mobility. The two combat elements of the army which have this mobility are Armor and Airborne.

For those individuals who still cling to the thought that any future war will be one which will be fought without mass destruction weapons, let us ask the question: With what forces shall we defeat our enemy? Our "superior" numbers in men? Our overwhelming majority in tanks? Perhaps our "armies of artillery"? It is a well known fact that we are greatly outnumbered by our potential enemy in all of these. If we are going to win, we will do so by employing the forces and weapons in which we, not the enemy, are superior. This makes the use of atomic weapons mandatory.

More important than the weapons we use however, will be the method by which we employ our forces. Our strategy and tactics must be superior to those of the enemy or we will surely be defeated in spite of our margin in atomic weapons. With this in mind we must objectively examine our concepts to determine whether we are taking full advantage of our technological advances. This is not an easy thing to do. Human nature resists change. We find it much easier to stick to the things with which we are familiar. Those of us in Armor, recalling the obstacles met with by such men as Chaffee, DeGaulle, and Guderian, should be the first to recognize this fact. We must constantly strive for flexibility of mind.

The next war is certain to be a war of movement. Most military men now recognize the fact that positional warfare or the Broad Front Concept is now as obsolete as the phalanx and as futile as the Maginot Line. The superiority of the Mobile Concept was well demonstrated by the German panzer forces and General Pat-

f the service to include combat arms and tech-
ical commanders regardless of the level on which
of the roles of our contemporaries will greatly
his becomes more acute on the atomic battlefield.

Mobile Warfare
IRBORNE . . .

U.S. Air Force

ton's Third Army in France in World War II.

Many military men feel that the ideal force for a war of the future is an Armored force. Others feel that Airborne units will play the decisive role. Unfortunately, many of the proponents of these two combat forces are not fully cognizant of the capabilities of the other. They fail to to realize that Armor and Airborne are complementary forces which, if united as an operational team under one commander, form one of the most effective combinations it is possible to devise.

Many Armor officers object to consideration of Airborne units as an effective combat force. They cite examples of airborne operations in World War II in which drop zones were missed, missions were not accomplished, and unusually heavy casualties were sustained. They fail to take into account the missions which *were* accomplished, and the more indirect effects of the operations in blocking or tying up enemy reserves, lines of communication, and the effect on enemy morale and combat efficiency. More important, they fail to consider the fledgling status of the Airborne forces at that time. We may well compare the status of Airborne in World War II to that of Armor in World War I. In recent years great advances have been made in Airborne equipment, tactics, and techniques. Improvements have been made in troop carrier planes, parachutes, homing devices, and air delivery of heavy equipment and supplies. As these developments continue we may well see the helicopter taking the place of the parachute as the normal method of delivery to the battlefield.

Let us now look into the opposing camp of those Airborne enthusiasts who regard the conventional tank as some sort of outdated, ineffective, crawling monster. A considerable amount of publicity has been given

CAPTAIN EVERETT C. ROYAL, Armor, served as an enlisted man in Europe with the 42d Infantry Division during World War II. Subsequent to the war he received his commission as a distinguished military graduate from the University of Akron and served in Korea. Prior to his present assignment as a student at The Armored School, Fort Knox, he served with the 44th Tank Battalion, 82d Airborne Division, at Fort Bragg where he became a qualified parachutist.

in the past few years to statements that the tank as we know it today is an obsolete piece of equipment. This clamor began when the bazooka was introduced to the battlefield. It continued when it was discovered that we could not economically or efficiently transport the tank by air. Experiments have been conducted with light air-transportable tracked vehicles mounting recoilless rifles or rocket type weapons. This type of combat vehicle is no doubt satisfactory for limited anti-tank protection of an Airborne unit immediately after its drop and prior to the arrival of heavier supporting Armor. Against an organized attack by enemy Armor in force, however, the light vehicle lacks the range, accuracy, ammunition capacity, and battle endurance which are required to defeat the medium and heavy tank of the enemy. There is no logic in adopting a piece of equipment just because it is light enough to be airlifted to the battlefield if, upon reaching the battlefield, it is to be reduced to a flaming pile of junk by the longer range weapons of enemy Armor. Only when weapons developments give us a smaller gun, firing smaller ammunition, but with the range, ballistics, and Armor penetration capabilities comparable to our present tank guns, can we seriously consider eliminating the tank as we know it today.

Of the many Airborne and Armor men who are loud and adamant in their claims that their particular arm is the answer to America's prayers for an invincible military force, it is doubtful if many realize that the two arms have many desirable characteristics in common, and that each component has certain weaknesses which can be filled in by certain advantages of the other. Let us consider separately the concepts of the use of Airborne forces and Armored forces in order to better visualize the effectiveness of using the two forces together as a team.

In combat, the normal mission of an Airborne division is to drop deep behind enemy lines to secure some target or objective of great importance. Important communication centers, bridges, or supply areas are typical objectives. The Airborne forces may be re-supplied by air, and if their position becomes untenable, possibly evacuated by air through the use of helicopters. Normally however, the successful seizure of an objective is followed by an overland attack and link-up by friendly ground forces.

Now let us consider the Armored forces. One of the most effective methods of employing an Armored division in combat is to effect a penetration of the enemy's main battle position and then drive deep into his rear areas for the seizure of some objective of great tactical or strategic value. In examining the list of profitable objectives, we discover that they usually coincide with those which would also be proper for an Airborne operation. How much more effective it would be then, if instead of having these two mobile forces operating independently or semi-independently, we were to form them into a closely coordinated striking team of corps or army size. An objective would be selected deep in the enemy rear area and after careful planning, the Airborne dropped on or near it. Simultaneously, the armored element of the team would launch a concentrated attack on a narrow portion of the enemy front. A penetration would be effected, and Armor would move at full speed to link up with the Airborne force in the objective area. Standard Infantry should be used as a follow-up force to hold and expand the gains made by the Armor-Airborne team. Tactical air must lend maximum support throughout the operation.

Atomic support would figure heavily in an operation such as visualized here, primarily to soften up the objective area just prior to the Airborne drop, and to neutralize enemy defenses at the point selected for penetration by the Armor. Troop tests have proven beyond a shadow of a doubt that combat units can move into an area minutes after it has been subjected to an atomic blast. Highly mobile units such as Armor and Airborne are ideally suited to fully exploit the devastating effects of such a weapon.

Standard Infantry cannot be eliminated in mobile warfare since it will play a very important role as a follow-up force for the Armor-Airborne team. It is believed to be highly desirable however, to give Airborne training to as many Infantry units as possible. This would permit rotation of units used in the Airborne assault role. Perhaps even more important would be the increase in efficiency of the unit due to the mental and physical conditioning resulting from this type of training. The increase in aggressiveness and self-confidence would be well worth the additional time and expense involved.

Both Armor and Airborne are strategical as well as tactical threats to the enemy, since both may be moved rapidly over great distances and committed to action wherever they can most effectively be employed. The modern paratrooper travels to the battlefield at a speed of approximately two hundred miles per hour. Once he is on the ground, however, he is largely limited in his mobility to the speed that his own two legs can carry him. The tank travels at a speed of only twenty to thirty miles per hour, but it can move at this speed on the battlefield as well as on the way to it.

Both Armor and Airborne possess great firepower. While we do not normally think of an Airborne unit as one which is marked by this characteristic, we must remember that the effectiveness of the weapons is magnified by the fact that they are being used far in the rear areas of the enemy.

Armor and Airborne possess the inherent ability to demoralize the enemy. The sudden appearance of advancing tanks on the battlefield has a fear-producing effect that only the most resolute soldier can conquer, but the known presence of enemy paratroopers to one's rear produces an equally powerful psychological reaction.

To summarize the foregoing statements, both Armor and Airborne forces possess the highly desirable characteristics of Mobility, Firepower, and Shock Action.

We are presently in need of greater understanding and cooperation by the members of Armor and Airborne units, the two great arms of mobility. More combined arms training by these two forces is believed to be absolutely necessary. Any major war of the future will of necessity be a war of movement. We must not fail to fully exploit Armor and Airborne, the team of mobile warfare.

The 66th Annual Meeting of the U.S. Armor Association

- *Report on the Meeting*
- *The Principal Address*
- *Message from President of the United States*
- *Salutes from around the world*
- *Report of the Secretary-Treasurer-Editor*
- *The Constitution*
- *History, Esprit and the Future . . .*

The 66th Annual Meeting of The United States Armor Association

THE 66th Annual Meeting of the United States Armor Association held at Fort Knox during the 28th and 29th of January now joins its long line of predecessors in the annals of history.

Replete with a two-day schedule that left all its participants completely exhausted, this gala occasion served as the pinnacle from which to view the past year's accomplishments and the starting point for a greater year in 1955.

Many leading Army personalities were in attendance which serves to prove the increased interest in Armor in this Atomic day and age. Among those present were: General John E. Dahlquist, Commanding General, Continental Army Command; Lieutenant General Willis D. Crittenberger, Retired; Lieutenant General Thomas W. Herren, Commanding General, First Army; Lieutenant General W. H. Morris, Retired; Lieutenant General Williston B. Palmer, Deputy Chief of Staff for Logistics, Department of the Army; Lieutenant General Floyd L. Parks, Commanding General, Second Army; Lieutenant General I. D. White, Commanding General, Fourth Army; Lieutenant General Willard G. Wyman, Commanding General, Sixth Army; Major General William L. Barriger, Office of the Secretary of Defense, Research and Development; Major General William S. Biddle, Commanding General, 1st Armored Division; Major General Ronald C. Brock, Commanding General, 27th Armored Division; Major General C. E. Byers, Deputy Commandant, The National War College; Major General Lawrence R. Dewey, Office of the Comptroller, Department of the Army; Major General E. N. Harmon, Retired, President, Norwich University; Major General Thomas L. Harrold, Commanding General, III Corps; Major General Albert S. Johnson, Commanding General, 49th Armored Division; Major General D. W. McGowan, Commanding General, 50th Armored Division; Major General Gilman C. Mudgett, Chief of Information, Department of the Army; Major General George W. Read, Jr., Commanding General, The Armored Center; Major General Thos. J. H. Trapnell, Commanding General, 4th Armored Division; Brigadier General L. V. Hightower, O & T Division, G3, Department of the Army; Brigadier General Charles Bromley, The Assistant Commandant, The Armored School; Brigadier General S. R. Hinds, Retired; Brigadier General J. A. Holly, Retired; Brigadier General Briard P. Johnson, Chief, Michigan Military District; Brigadier General Wilhelm P. Johnson, C/S, III Corps; Brigadier General C. P. Kerr, 49th Armored Division; Brigadier General Samuel L. Myers, 3d Armored Division; Brigadier General Andrew P. O'Meara, Office of the Deputy Chief of Staff for Logistics; Brigadier General Almerin C. O'Hara, 27th Armored Division; Brigadier General Brainard E. Prescott, 27th Armored Division; Brigadier General George A. Rehm, 1st Armored Division; Brigadier General Paul M. Robinett, Retired, OCMH, Department of the Army; Brigadier General Harry H. Semmes USAR, Washington, D. C.; Brigadier General John K. Waters, 4th Armored Division; Brigadier General Edward O. Wolf, 50th Armored Division; Brigadier General William H. Wood, Deputy Commanding General, The Armored Center, and many members of Armor of all components—Regular, Reserve, and National Guard—including many off post visitors, and Armored Center personnel from the School and the 3d Armored Division.

The increased interest in Armor was likewise noticed by the many distinguished members of the press who attended the meeting. Included in this group were: Mr. Hanson W. Baldwin, New York Times; Mr. Monte Bourjaily, Army Times; Mr. George Fielding Eliot, General Features Syndicate; Mr. Warren Kennett, Newark News; Mr. Walter Millis, Historian, Ford Foundation, Mr. Mark Watson, Baltimore Sun; Mr. Garrett Underhill, writer and noted Soviet military authority; Mr. S. L. A. Marshall, Detroit News. Several Armored Division Associations were represented. Namely these were: Colonel Andrew Barr, President, 3d Armored Division Association; Colonel Redding F. Perry, Secretary, 2d Armored Division Association; Mr. Henry B. Rothenberg, President, 8th Armored Division Association; and Mr. Tom White, Secretary, World Wars Tank Corps Association.

Immediately following the honors for all visiting general officers, Association members assembled in Theater No. 1 for the annual business meeting. Major General Read, the Commanding General of The Armored Center and official host for this occasion, opened the festivities with an address of welcome. Following this address, he introduced Lieutenant General Parks, the Second Army Commander, whose remarks appear elsewhere in this feature section on the annual meeting. General Read next introduced Colonel Herbert H. Frost, the senior vice-president of the Association present who took charge of the business meeting.

Approximately 550 members were present for this session and 925 more stationed around the world (whose duties prevented attendance) were represented by absentee ballots. Combining these two groups the constitutional requirement for a quorum was fulfilled.

In view of the fact that a complete report of last year's meeting was published in the March-April 1954 issue of ARMOR the reading of the minutes of the previous meeting was dispensed with, and the Secretary read the Annual Report (which also appears elsewhere in these pages) covering the financial and general affairs of the Association.

Acceptance of the Annual Report was followed by the consideration of the recommended changes to the constitution, which were proposed and circulated to all members as required by the constitution.

Both of these changes had been under consideration for some time by the Executive Council who had requested the poll of membership.

The first proposal relaxes the restriction for active and associate membership to include all present and former commissioned officers and warrant officers of honorable record who have served in Armor as active voting members and all other present and former commissioned officers, warrant officers and non-commissioned officers of honorable record in the military, naval or air service, as associate members. This proposal allows the retired Armor officer and any officer interested in mobile warfare who has served in Armor to retain his voting privileges in the Association. It also gives the non-commissioned officer associate membership along with all other present or former officers.

The second proposal permits the holding of the annual meeting any time during the first half of each calendar year allowing more flexibility in future planning.

Both of these changes passed by an overwhelming majority.

Consideration of a slate of officers for 1955 was next on the agenda. Lieutenant General Crittenberger, Chairman of the nominating committee, read the proposed slate of officers for nomination. However, prior to reading the slate he stated some of the motivating factors in selecting the slate for this year. Some of the council members of the past year have either departed for overseas or are due to depart prior to the next annual meeting. Further, it is necessary to keep a good percentage of the council members in the Washington area for the conduct of business. Likewise a rotation of some members would familiarize more personnel with the business end of the Association. Also due to the increase of National Guard Armored Divisions it was felt that a larger representation from that component should be included on the council for this coming year. The slate, as read, was carried unanimously. Our new President, Lieutenant General Williston B. Palmer, the Deputy Chief of Staff for Logistics, accepted the chair and expressed his appreciation for the honor bestowed on him and assured everybody present that he would assist in any way possible during the coming year.

At this time General Palmer read messages from various leading Armor personnel around the world. These were posted on bulletin boards wherever association members were gathered during the two-day session and read and enjoyed by all concerned. At this point a most dramatic moment took place when General Palmer read to the assembled members a message from President Dwight D. Eisenhower (printed elsewhere). The cognizance taken by our Commander-in-Chief of our annual meeting is indeed noteworthy.

At this time the meeting was opened for other business. Major General Trapnell, Commanding General of the 4th Armored Division, proposed that the Association, in cooperation with the Department of the Army, establish awards of appropriate trophies to be competed for by Reconnaissance, Tank, Armored Infantry, Armored Field Artillery and Armored Cavalry platoons, companies and battalions. Competition should be world-wide and selection based upon the appropriate ATP test. This is in keeping with the announced purpose of the Armor Association. This matter was referred to the Executive Council for further study and recommendations. There being no further business this portion of the meeting was adjourned.

Mr. Hugh M. Milton II, Assistant Secretary of the Army, was to be the principal speaker. Unfortunately due to last minute pressure of business he was unable to be with us. We were indeed fortunate to have General Palmer present who brought us Mr. Milton's message, which is included in this issue, before an assembled gathering of close to 2000 officers at Sadowski Field House.

Following lunch at the Country Club the visitors assembled at Dorret's Run to witness the demonstration "Armor in the Attack." The participants portrayed their parts most realistically and are to be congratulated for their efforts. An evening dinner for most of the visiting dignitaries closed the day's activities. Those present were fortunate to hear from several members of the press who were invited to the dinner.

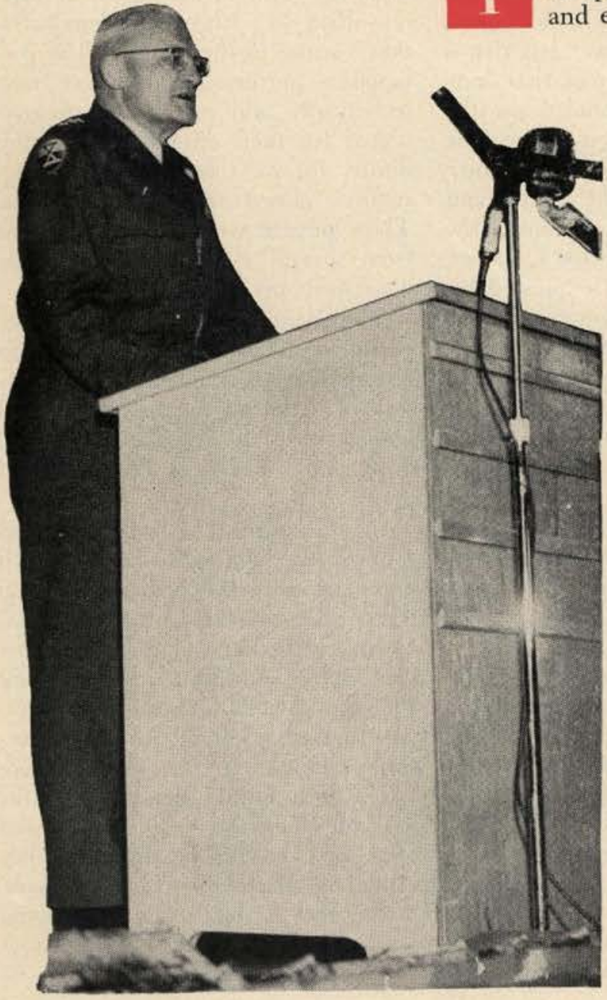
The entire day, on Friday, was devoted to conferences and presentation of papers on outstanding Armor subjects. The day's activities were indeed beneficial to all who attended and drew the praises of the assembled group.

In the evening a reception and dinner were held in Ruffer Hall with approximately 300 persons attending. Those present heard from General Dahlquist, General Harmon, and several members of the press. General Palmer officially closed the conference upon the conclusion of the evening festivities. It was a fitting climax to the 66th annual meeting. Plaudits are due General Read, our genial host, and his staff for the hospitality shown all off post visitors. They made us feel that we had really come home —which we had, for Fort Knox is the home of Armor.

THE HON. HUGH M. MILTON, II
Assistant Secretary of the Army
(Manpower and Reserve Forces)

The Principal Address before the U.S. Armor Association's Annual Meeting

Due to circumstances beyond his control, Mr. Milton was unable to be here. His remarks were delivered by our President.



THE gathering together of a splendid association such as yours, with its opportunities for renewing old acquaintances, making new ones, and even more important, exchanging ideas on the future of your vital branch, is one of the important vehicles to insure the the continued vitality of the United States Army. The opportunity and ability of projecting ourselves realistically into the future that is afforded us on such occasions is one of which we should always take maximum advantage.

I personally have always had tremendous admiration for you men of the Armored forces. Your doctrine of mobility, shock action and firepower, or as some of you have phrased it, "The Arm of Decision," has lent much to our nation's military history. The great men of Armor stand proudly forever beside the company of men who made our Army and our Nation great. Some who led our great Armored formations in World War II—George Patton, Maurice Rose, Walton Walker—are with us in spirit. Others are here with us today. I am certain that they all join us in proposing a toast to the continuing vitality and imagination of this splendid organization. They, with us, ponder the future of the Army in this atomic age and I think would agree that mobility, firepower and shock action will still decisively influence our ability to win the next war.

For fear that you may feel I am at this point going to embark on a dissertation on the strategy and tactics of the employment of Armor, I will right now allay those fears. With the tremendous talents that I see before me, I would not for a moment impose such an ordeal upon you. I would like to say, however, that I have noted a TREND on the part of our General Staff planners to activate more Armored divisions in the active establishment and to convert National Guard divisions from Infantry to Armor over the past year or so. Not professing to be a strategist, I will have to let you draw your own conclusions on the reasons therefor.

What I would like to discuss with you as objectively as possible—and a question which I know is always foremost in your minds—is the future of the Army in playing its vital role in the defense of this great land of ours. I would like to emphasize that word "vital" because I believe that the role of the Army in any future conflict will always be vital.

I need not emphasize to this group that there exists in the world today a force so uncivilized, so evil, so abhorrent, yet so persistent as to present a very real threat to each of us. This force is International Communism. Further, I need not emphasize that the United States and her allies are earnestly dedicated to uncompromising opposition to the evil that presently characterizes the Communist movement. We shall continue to do so unless and until the Communists prove—by acts, not words—that they intend to abandon their objectives. There is no doubt in my mind that the mental, moral and spiritual fiber of free men everywhere shall defeat this Goliath, but constant vigilance, coupled with the courage of David, are required. We must face these facts and insure that adequate military strength of appropriate composition continues to be an absolute essential to our national security. In this composition, the United States Army continues to play a fundamental role.

I think that we have all been subjected by certain uninformed or misinformed enthusiasts to entirely too much vocal and written opinion as to the worth of certain weapons, certain concepts, and certain strategy. You here can appreciate, as well as any member of our Army, the overriding value of teamwork. You operate as a team of Armor, Infantry and Artillery, supported by appropriate services. You know that without that teamwork your operations will fail. You can appreciate, therefore, the fact that at the highest levels of our government, the thinking people who map our basic strategy must be equally aware that teamwork is required, not only to win a global war, but to insure as far as humanly possible that their great nation can maintain the balance of power in this period of tension and cold war.

Certainly you will agree with me that no single weapon or service is equipped to perform this formidable task alone—either now or in the foreseeable future. All the services—Army, Navy and Air—are members of a defense team and each has a vital role to play. How each will fulfill its role will change with changing weapons and techniques, but the point to emphasize is that the role of each service remains basically the same.

It is fundamental that the Armed Forces of any country must be so designed as to support the national strategy. Our strategy is not aggressive, rather, we seek to neutralize the strategy of world domination and aggression being so persistently employed by the Communists. With this as our course of action, if we have inappropriate forces to support our diplomacy and sustain us through the cold war, with its creeping aggression, I feel that we will lay ourselves open to the worst. Therefore, I cannot emphasize strongly enough the vital role your Army will be required to play as a member of the team in winning the cold war, as well as all-out war, and insuring a worthwhile victory when the war is won.

Let me say that the Communists have been careful to preserve and develop their ground forces. The mere presence of their vast Army in critical areas at a time when they had just limited capabilities enabled them to press home their aggression and subjugate country after country. Conversely, in countries where the Armies of the western world were positioned, Communist expansion failed. Now that the Communists have a nuclear capability, you will note that they continue to preserve their land forces. Even now the Satellite countries have gathered together the land armies of the Soviet bloc as a means of reacting to the increased strength of a European Army which would include German land forces.

General Matthew B. Ridgway, our Chief of Staff, recently stated, "A military strategy known to be aimed primarily at the industrial source of enemy strength is not enough. It would not defeat the enemy's military forces in the initial phase if their leaders deliberately chose war and commenced military operations. It might never defeat them.

"Such a strategy, especially under modern conditions of combat in which technology is so important in maintaining capability over an extended period of operations, is, of course, a vitally important part of *total* strategy. But it would not in itself be an adequate strategy, even if largely successful, and success in war is never a certainty.

"A successful strategy necessarily contains more than one element and each one of these elements supports and is supported by the others. The possibly hackneyed but indisputable axiom still holds true: 'A chain is no stronger than its weakest link.' Only military strength containing all of the capabilities required to defeat the several capabilities of the enemy can give real hope for a victory."

General Ridgway is saying that effectiveness in the air, at sea and on land is essential. He is further saying that we must have the flexibility to react to the various capabilities of our enemy, be it cold war, creeping aggression or all-out war. We *must* guard against being forced into a life and death duel. We must have the weapons necessary to our needs and to our objectives. We must remember that the shadow of Red Armies looms large across the face of the globe.

We must use the months ahead to insure that our flexibility is retained to counter Communist land forces wherever and in whatever force they threaten. Certainly we should never be forced into the position of using a sledge hammer to kill a mosquito. To do so might invite the disaster of a war which our people so ardently wish to avoid.

My simple conclusion from this is that your Army continues to be a principal instrument of national policy in cold war, creeping aggression, all-out war, and more important, in insuring that the outcome of victory will be more than a pile of rubble and ashes.

It seems to me that those who question the role of the Army in modern warfare have not taken seriously the lessons of history, for the Army's basic role has remained unchanged since biblical days, through Alexander the Great, through Julius Caesar, through Genghis Khan, through Napoleon Bonaparte, and in our own era, through Lee, Jackson and Grant, through the Indian Wars, the Spanish War, two World Wars, and only recently, Korea. And why has it remained unchanged? Because in spite of all the innovations—from the elephants of Hannibal to the invention of gun powder, the machine gun, yes, even the tank, and now the refinements of the airplane with its vastly improved capability for mass devastation—the problem remains that to win a war the requirement exists for wresting from the enemy his homeland by force of arms on the ground and bending his people to your will. It is impossible for me to visualize how this can ever be done by remote control.

You and I know that were one breath left in us, each and every one of us would stand to the last to defend our homeland. We who have an abiding faith in the inherent greatness of the American people—their courage and tenacity in the face of overwhelming odds of adversity—and their magnificent resilience and adaptability—know that this is so. Those of us who would be left after the initial shock of indiscriminate mass destruction weapons would band together and repel the invader. A virile Army, backed by a truly ready Reserve would, of course, make this task more easy. I make this point —horrible as it is to contemplate—to illustrate that we must, in my opinion, never rely on the easy way of winning wars. For what is true of this great land has been demonstrated in the past in other countries, including the Soviet Union.

No one can predict with finite accuracy the vitality of a people. You will recall that Herr Hitler made that tragic mistake with respect to the Soviets. Their resistance and resolution were a mortal blow to his plans for the conquest of the world. Mr. Tojo made the same mistake at Pearl Harbor when he wrote off the American Fleet. In fact, the military history of the world is replete with underestimations of the will and bravery of a people. The only sure way, if there be any at all, of insuring defeat of a nation is the seizure of its territory and the subsequent domination of its people.

And so it is that through the ages the role of the Army never changes—only the methods. The ultimate goal of warfare similarly has not changed —only the violence with which it is waged.

For us in this great Army of ours, this latter consideration imposes a grave responsibility. Everything must be better than it has ever been before —our weapons, our tactics, our logistics—and even more important, our leadership, from which all else stems. Here again history serves us well. How many examples do we have of superior equipment, superior weapons, greater numbers of men—but inferior leadership—which led magnificent military arrays to defeat and disaster. In our own country's history we have striking examples of the converse from Washington's tatterdemalions at Valley Forge to General Walker's Eighth Army on the Pusan Perimeter in Korea. The importance of leadership in the thermonuclear war age of today will require the maximum of initiative—from the squad leader and tank commander to the highest echelons of command. Decentralization of authority and command will be a vital necessity to effect control and direction. With such decentralization will come the adjunct necessity for effective leadership everywhere. The old, old saying: "For the want of a nail the shoe was lost, for want of a shoe the horse was lost, for want of a horse the rider was lost, for want of a rider the battle was lost, for want of a battle the nation was lost," will have stark applicability in any future war when applied to military leadership.

As you know and have undoubtedly discussed among yourselves, we in the Pentagon have given much thought to improving the machinery for encouraging effective leadership and blowing back to a bursting flame the glowing spark of unit morale and integrity. I think General Ridgway and his staff deserve great credit for setting our course in the right direction. I can assure you that many bold and imaginative steps have been taken and are planned—in many cases in spite of complex problems which would intimidate the less courageous. All of us can assist in this great program of leadership and pride-of-unit regeneration. I think you recognize the vital necessity of its success for the future of our beloved Army.

I am not implying by this that our current officers are not capable of effective leadership. I think that the history of the last two wars has magnificently demonstrated their capabilities. In fact, it is inspiring to know that many colonels and lieutenant colonels had organizations of size and composition in World War II that brought everlasting glory to general officers in the Civil War. Some of your own Armored officers such as Colonels Creighton Abrahms and Art West in World War II, and Colonel Tom Dolvin in Korea and many others demonstrated the capacity to lead in the officer corps. We are trying to insure that such inspired leadership potential is not stifled by administrative policies, and further that all officers are inspired to lead.

These are fast moving days and there is no place in our Army of today for the timid, the slow, and the unimaginative. We must not only keep pace with the times—we must anticipate the future in order that our role in the defense of this country gains ever-increasing importance. All I ask of you is that you use the same imagination, drive and forward movement that have characterized Armored thinking since the days of General Chaffee, to assist us in our efforts to make your Army the finest fighting machine in the world today.

To achieve such an Army, and maintain it, will require fervent dedication to an unshakable faith in the destiny of your Army. You and I must publicly demonstrate by word and deed that we believe in the fighting capability of this Army, enriched in its glorious tradition on the field of battle. We must challenge as never before the cynics and doubters who waver in the face of periodic economic considerations, changing weapons, or temporary emphasis on particular functions. You and I in this great service must believe ourselves and impart to all, our unshakable conviction in the fundamental role of the Army as a fighting member of our Defense team. You gentlemen must be the missionaries and the prophets in this endeavor if our battle streamers are to continue to embellish the pages of this nation's military history.

from the President of the United States

The White House, Washington, D. C.

Lieutenant General Hobart R. Gay

Acting President The U. S. Armor Association

Through the next two days I am told The United States Armor Association at its Sixty-Sixth Annual Meeting will discuss with key Army personnel and civilian leaders problems of defense as related to mechanized and mobile warfare. To the theoretic consideration of these problems its members bring a vast store of combat knowledge and battle experience. They pioneered the development of the Tank Corps; led the armored spearheads that liberated Europe in World War II; fought heroically in the Korean valleys and mountains. Because of their background and their dedication to the security of the Republic the conference should constructively advance our defense thinking and planning. Please extend to the association's members and their guests my best wishes for a profitable and successful conference.

DWIGHT D. EISENHOWER

. . . *salutes from around the world*

On the occasion of the annual meeting of the U. S. Armor Association I extend my best wishes to all its members for a successful meeting as the prelude to another year of achievement.

The coming year will present the Army with new challenges and new opportunities for devoted service. The soldierly qualities which have distinguished the members of Armor in the past will be called forth again. The Army's ability to carry out its combat missions must be enhanced to the utmost.

Intense interest in advancing military knowledge is well exemplified by the members of the Armor Association. I am confident that, as a result of your annual meeting, each of you will be inspired anew to continue to contribute your finest efforts to the attainment of the highest combat potential for our Army.

M. B. RIDGWAY
General, United States Army
Chief of Staff

. . . On the occasion of the annual meeting of the U. S. Armor Association at Fort Knox, I wish to extend my best wishes for a successful meeting. The leadership which the Association has provided in the past years has been of the finest, and I shall observe with much interest the decisions forthcoming in the 1955 meeting. . . .

BRUCE C. CLARKE
Lt. General, USA
Commanding USARPAC

. . . I am fully cognizant of the many benefits derived from the assembly of the leaders of Armor, the Army and the Press. I feel that the mutual exchange of ideas and thoughts will be of major significance to our Army. . . .

J. H. COLLIER
Lt. General, USA
Commanding I Corps

. . . Leadership is particularly important in armored units which must frequently operate independently, and is an essential preliminary to successful tank-infantry operations and the creation of the combat-arms team.

Our every effort must be bent toward improving the leadership of armored officers and senior non-commissioned officers. With capable leadership our armored units will be unexcelled. We are making progress in this field, to which the Armor Association contributes importantly. . . .

H. I. HODES
Lt. General, USA
Commanding VII Corps

. . . My kindest regards to Secretary Milton and to all members of the U. S. Armor Association. . . .

WILLIAM C. CHASE
Major General, USA
Chief MAAG, Formosa

. . . The past year has been a very significant one in the history of Armor. The reactivation of the 4th Armored Division, the activation of new Armored Divisions in our National Guard, and the greatly increased recognition of the importance of Armor in our Army by both the public and the military are tangible events of major importance. The activities of our Association have undoubtedly influenced the decisions which have effected the accomplishment of these events . . . .

L. L. DOAN
Major General, USA
Commanding General
2d Armored Division

. . . Within the United States Military Advisory Group to the Republic of Korea, we continue to be amazed at the speed with which the Korean soldiers have mastered military skills. In no field is this aptitude more striking than in Armor. . . .

R. L. HOWZE
Major General, USA
Chief KMAG

. . . We join in expressing the conviction that the annual meetings of the Association at The Armored Center are progressive and extremely valuable to the advancement of the interests of Armor in the Armed Forces of the United States. . . .

JOHN C. MACDONALD
Major General, USA
Chief, Army Section, MAAG, Formosa

. . . I feel that these meetings are of great value to all members of the Association as well as to the other branches of service with whom we must work closely to perfect our Combat Arms Team. The new ideas and concepts brought forward, based upon recent experiences, enable us to improve our techniques and adjust our thinking so that we may better utilize the weapons and equipment available to us. These are things we must constantly strive to do. . . .

H. G. MADDOX
Major General, USA
Commanding General
9th Infantry Division

. . . As are all fighting branches, Armor is being subjected to the powerful influences of the whole field of new battlefield weapons. Of all things, then, I think Armored officers should strive to maintain a mobility of mind. We might almost adopt as our motto the statement of Field Marshal Von Moltke: "Everything in connection with war is subject to continuous change. *Only change is permissible.*" . . .

HAMILTON H. HOWZE
Brigadier General, GS
DC/S, Operations
Seventh Army

. . .Tell them of my deep conviction of the vital importance which Armor not only has played in the past but which I believe it will play in the future in the guarding of the security of our country. I am proud to be associated with all of you and send my congratulations on the fine patriotic work which you are doing. . . .

HENRY CABOT LODGE, JR.
United States Representative
to the United Nations

. . . "Armor," magazine has been a ready reference on important, current military topics in general and the latest trends in armor tactics and equipment in particular. Especially noteworthy in this era of the so-called "New Look," is proper emphasis on the importance of the Combined Arms Team and the role of armor in that team—a message so well conveyed by "Armor" magazine. . . .

BOYD L. BRANSON
Colonel, Armor
Commanding
19th Armor Group

. . . In our daily border surveillance mission and in many maneuvers I feel we have amply demonstrated the fundamental soundness of the current organization of the Armored Cavalry Regiment. The part played by the Association in further developing the tools and concepts of mobile warfare necessary to insure victory in future wars is known and appreciated here. . . .

D. P. CHRISTENSEN
Colonel, Armor
Commanding
6th Armored Cavalry Regt

. . . In the coming months this Regiment will be a "guinea pig" in Operation Gyroscope, being the first overseas Armored unit to participate. Preparations for this rotation, in addition to the already filled schedule of training and of Border Patrol Operations, makes this a most active unit. . . .

WILLIAM H. GREEAR
Colonel, Armor
Commanding
2d Armored Cavalry Regt

. . . Everything we know and can estimate with respect to the future of ground forces appears to point to the conclusion that our field of specialization in the combat team will be ever more enhanced on tomorrow's battlefield. That gives us a goal which our entire membership—from those whose contribution has been to our heritage, to those whose contribution will be our destiny—may join in professional association in reaching. . . .

WILLIAM G. BELL
Major, Armor
Former Secretary of
The U. S. Armor Association

The Annual Report of the Secretary-Treasurer-Editor

To the Members of the United States Armor Association:

Submitted herewith is the report of the Secretary-Treasurer-Editor covering the general affairs of the Armor Association for the year 1954.

The Association

The year 1954 was a good year for Armor. In consonance with this thought it was a good year for the United States Armor Association. On January 29th, the 65th Annual Meeting was held and we were indeed fortunate to have as our principal speaker, General Charles L. Bolte, the Vice Chief of Staff of the Army.

The meeting served as the starting point for a full year of activity which includes increased membership, submission of material and general interest in the affairs of the Association.

Total receipts for the year approximated $32,000.00. Although book business decreased somewhat it is significant to note that the receipts for ARMOR magazine increased considerably.

Two council meetings were held during the year. On June 11th consideration was given to the annual meeting in which you are participating today. The site for the meeting was approved and a committee was established to draw up plans for the meeting. The business meeting, although important, was made secondary to the discussions of professional subjects pertinent to the field of mobile warfare. A committee was also appointed to consider possible changes to the constitution.

FINANCIAL REPORT
of
THE UNITED STATES ARMOR ASSOCIATION
For the Year Ending 31 December 1954

CASH RECEIPTS & EXPENDITURES

Department	*Receipts*	*Expenditures*
ARMOR Magazine	$27,595.15	$20,024.65
Book Department	3,313.15	2,144.53
Income from Investments	138.50	
District of Columbia Sales Tax	1.74	1.70
Federal Excise Tax (Refund)	6.20	
District of Columbia Personal Property Tax		31.49
Bank Credits & Charges	1.21	1.90
Postage	3.00	900.40
Office Supplies	8.82	222.35
Stationery & Printing		423.26
Telephone & Telegraph	.68	373.17
Machinery & Equipment	10.00	297.50
Maintenance & Repairs (Equipment)		53.50
Rent		1,980.00
Janitor Service		180.00
Travel Allowances		1,055.00
Travel Expense		55.03
Express Charges		63.41
Council & Editor Expense		231.12
Fire Insurance		47.60
Contributions & Flowers		60.70
U. S. Government Bonds Purchased (Series "K")		3,000.00
Miscellaneous		15.00
TOTALS	$31,078.45	$31,162.31
Bank Balance (1 January 1954)	762.47	
Bank Balance (31 December 1954)		678.61
TOTALS—RECEIPTS & EXPENDITURES	$31,840.92	$31.840.92

NET WORTH—December 31, 1953	$ 9,263.94
NET WORTH—December 31, 1954	12,041.45

The second meeting was held on November 28th. Plans for the meeting were firmed up as much as possible at this early date. The Secretary was directed to poll the membership for proposed constitutional amendments prior to the annual meeting. The two changes which will be acted upon today concern relaxing the membership restrictions and changing the date of the annual meeting.

The Council Advisory Boards in the two overseas commands continued their support during the year by their efforts in securing additional members, encouraging submission of material of professional interest for possible publication in ARMOR and keeping the office in Washington informed of pertinent happenings embracing the mobile field.

The yearly custom of presenting awards to the outstanding senior cadet at each of the fifteen installations conducting Armor ROTC instruction was again observed. In addition to the certificates signed by the President and Secretary of the Association, a package of three books consisting of *Panzer Leader, War as I Knew It* and *Preparation for Leadership in America* was awarded to each recipient.

The Magazine

In keeping with the present policy each issue contained 64 pages.

The editorial policy continued to stress mobile warfare in all its aspects, the apprising of all concerned of recent trends and developments, and stimulation of provocative thought on various and sundry subjects pertinent to the military field. The necessity for a separate organization to represent this field was likewise a continuation from preceding years.

The series of articles prepared by Brigadier General Hamilton H. Howze proved to be a great assist to all units but more especially the new Armored Divisions in the National Guard, and much favorable comment was received along this line.

During the past year paid subscriptions increased a net of approximately 400 paid copies. Although this number is not large it should be noted that the year bulk orders to the *Stars and Stripes* in Europe for resale at Post Exchanges decreased 600 copies.

It likewise is a pleasure to report that ARMOR was selected on the last day of the year to be analyzed by a professional panel composed of members of the American Institute of Graphic Arts in New York City on February 16th (see Reconnoitering, page 29). This replaces the former system of awards which the magazine won in 1952 and 53.

The Book Department

Book department receipts were considerably less than the preceding year, but so were the expenditures. Books are selected for gratuitous advertisement in the magazine on the basis that they will materially assist the military professional in the pursuit of his endeavors. The margin of profit resulting from book sales assists in the other activities of the Association and should be encouraged by all members.

Among the top sellers were *Panzer Leader, Soviet Military Doctrine, Rommel Papers, Combat Actions in Korea, Atomic Warfare in Land Combat,* and a comparatively new book—*Strategy*.

The stock of binders was completely exhausted but has since been replaced, thus indicating the worth of ARMOR as a permanent file to Armor officers and units.

Summary

These highlights concerning all phases of activity lead us to believe that we are on a firm professional basis. Although our growth has not been as great as the number of Armor units during the year it continues on an upward swing. It is believed that a concentration of all unit commanders to secure copies for use by their units would indeed help the units concerned as well as the Association. The worth of the Journal as an adjunct to training should encourage commanders to subscribe for their organizations. In addition it is believed that all Armor branch officers should be members of the Association to assist in their individual professional development. The submission of material for publication without remuneration stresses the professionalism of this organization compared to a commercial type organization. Dissemination of thoughts to contemporaries through the medium of the magazine, without remuneration, is one of our principal aims.

THE NEW COUNCIL

Honorary President

Maj. Gen. Guy V. Henry

President

Lt. Gen. Williston B. Palmer

Honorary Vice-Presidents

General Jacob L. Devers
Lt. Gen. Geoffrey Keyes
Lt. Gen. Willis D. Crittenberger
Lt. Gen. Edward H. Brooks
Maj. Gen. Ernest N. Harmon
Brig. Gen. Henry Cabot Lodge, Jr.

Vice-Presidents

Maj. Gen. George W. Read, Jr.
Maj. Gen. Donald W. McGowan
Brig. Gen. Harry H. Semmes

Secretary-Treasurer

Lt. Col. William H. Zierdt, Jr.

Chairman, Council Advisory Board (Far East)

Lt. Gen. John H. Collier

Chairman, Council Advisory Board (Pacific)

Lt. Gen. Bruce C. Clarke

Chairman, Council Advisory Board (Europe)

Lt. Gen. H. I. Hodes

Executive Council

Lt. Gen. I. D. White
Lt. Gen. Hobart R. Gay
Maj. Gen. Thomas L. Harrold
Maj. Gen. T. J. H. Trapnell
Maj. Gen. L. L. Doan
Maj. Gen. Ronald C. Brock
Maj. Gen. Gordon B. Rogers
Maj. Gen. William S. Biddle
Maj. Gen. Albert S. Johnson
Maj. Gen. Paul H. Jordan
Maj. Gen. Homer O. Eaton
Brig. Gen. Paul M. Robinett
Brig. Gen. Louis V. Hightower
Colonel Herbert H. Frost
Colonel Robert G. Lowe
Colonel Creighton W. Abrams
Colonel William Tuck
Lt. Col. James F. Hollingsworth

Chairman, Council Advisory Board (Austria)

Brig. Gen. William H. Nutter

Chairman, Council Advisory Board (Middle East)

Brig. Gen. Rothwell H. Brown

CONSTITUTION & BY-LAWS OF THE UNITED STATES ARMOR ASSOCIATION

CONSTITUTION

ARTICLE I. Name

The name of this Association is THE UNITED STATES ARMOR ASSOCIATION.

ARTICLE II. Headquarters.

The headquarters of this Association is Washington, D. C., or such other place as the Executive Council shall determine.

ARTICLE III. Object.

1. The aims and purposes of this Association are to disseminate knowledge of the military art and sciences, with special attention to mobility in ground warfare; to promote the professional improvement of its members; and to preserve and foster the spirit, the traditions and the solidarity of Armor in the Army of the United States.

2. There shall be no capital stock, and no distribution of profits to any officer, member or other person, but the entire income of the Association from all sources shall be applied and used in the conduct of its activities and in furtherance of its object as set forth in Article III, subparagraph 1.

ARTICLE IV. Membership and Qualifications for Membership.

1. Members of the United States Armor Association are classified as follows:

   a. Active Members.
   b. Associate Members.
   c. Honorary Members.
   d. Junior Members.

2. The qualifications for membership are as follows:

   a. Active members: All general officers of the Regular Army or Army of the United States; and all present and former officers and warrant officers of honorable record assigned to, detailed in, or who have served in Armor shall be eligible.

   b. Associate members: All other present and former commissioned officers, warrant officers and non-commissioned officers of honorable record in the military, naval or air service, shall be eligible.

   c. Honorary members: Persons distinguished in military, naval or air service or learning shall be eligible upon election by a majority vote of the Executive Council. Such members shall not be subject to the obligations of active or associate members nor entitled to the right either to vote or to hold office. Otherwise they shall have the privileges of members, including the privilege to attend meetings and to engage in discussions.

   d. Junior members: Students of the Service Academies, Military Schools and ROTC institutions shall be eligible. Annual dues shall be at a reduced rate as determined by the Executive Council. Such members not to be entitled to vote or hold office; otherwise they shall have the privileges of members.

3. The ruling of the Executive Council on all applications for membership shall be final.

4. Membership in this Association may be terminated for cause at any regular or special meeting of the Association upon concurrence of three-fourths of the members attending said meeting; but only after the member concerned has been advised by written notice of said proposed action at least twenty days prior to such meeting, which written notice shall have been mailed to his address of record retained in the office of the Association, and only after said member has been given an opportunity to be heard at said meeting. Said member will be given an opportunity to be heard at said meeting if the member indicates his desire to the Secretary-Treasurer prior to said meeting.

5. Active members only shall be entitled to hold office and to vote. Each active member shall have one vote which may be cast either in person or by duly executed proxy.

ARTICLE V. Officers and Their Election.

1. The officers of the Association shall be as follows: President, First, Second and Third Vice-President, Secretary-Treasurer, Editor and eighteen (18) elected members of the Executive Council.

2. The President, the three Vice-Presidents, and the eighteen (18) elected members of the Executive Council shall be elected by secret written ballot at the annual meeting of the Association. A plurality of the votes cast shall be requisite for election.

3. The Executive Council which initially shall consist of the President, the three Vice-Presidents and eighteen (18) elected members shall appoint the Secretary-Treasurer and the Editor before the close of the month in which the annual meeting is held. Upon appointment, the Secretary-Treasurer and the Editor shall become members of the Executive Council.

4. The terms of all officers shall begin immediately after their election or appointment and shall continue for one year or until their successors have been duly elected or appointed.

5. The Executive Council shall manage the business and property of the Association consistent with law and this constitution; shall have power to make and amend the by-laws for its own government, which by-laws shall not be inconsistent with law or this constitution; and shall have the power to provide in the by-laws for the appointment of such other officers, agents and/or employees as it shall deem necessary and proper, and to prescribe their duties and compensation.

The changes to the Constitution acted upon at the 65th and 66th Annual Meetings are incorporated herein. ART. IV, a. b.; ART. V, 1. 2. & 3.; ART. VI, 1.

6. If a vacancy occurs in the office of the President, the unexpired term shall be filled by the First, Second or Third Vice-President, in order. If a vacancy occurs in any other elective office, it shall be filled by election at the next business meeting of the Association. The President may, however, make an interim appointment pending said election of a successor.

ARTICLE VI. Meetings.

1. The annual or regular meeting of the Association shall be held during the first half of each calendar year.

2. Special meetings may, and upon the written request of twenty (20) members, shall be called by the President at other times.

3. One month's notice of regular and special meetings shall be given. Such notice shall be deemed to have been given when published in an issue of ARMOR at least one month before such meeting, and a copy thereof mailed to each member at his address of record retained in the office of the Association.

4. Five per cent (5%) of the active membership of the Association, present in person or by proxy, shall constitute a quorum for the transaction of business, provided that at least ten (10) active members are present in person.

ARTICLE VII. Amendments.

1. This constitution may be amended or repealed by a vote of two thirds of the active members of the Association present in person or by proxy at a duly called meeting of the Association, provided that the notice of such meeting shall contain a notice of intent to amend or repeal as well as a copy of the proposed amendment or repeal. Recommendations for amendment or repeal shall be presented to the Secretary-Treasurer in writing signed by not less than ten (10) active members of the Association at least two months before the date of the meeting at which the proposed amendment or repeal is to be considered.

BY-LAWS

ARTICLE I. Object.

1. In furtherance of its aims and purposes, this Association shall publish with such frequency as may be determined from time to time by the Executive Council, a professional and scientific journal to be known as ARMOR, and shall conduct a book department for the sale of books, maps and periodicals to its members and to the general public.

2. The object of this Association may be further promoted by such other lawful means as the Association or its Executive Council from time to time shall deem appropriate.

ARTICLE II. Membership.

1. For the determination of eligibility for active membership in this Association, the designation "officers and warrant officers assigned to, detailed in, or serving with Armor" shall include the Regular Army, the National Guard and the Organized Reserve Corps.

2. Any person desiring to become an active or associate member shall make application to the Secretary, which application shall set forth facts establishing his eligibility and be accompanied by the payment of at least one year's dues, the amount of which shall be determined from time to time by the Executive Council. The applicant's eligibility appearing, the Secretary may grant the membership.

3. All active and associate members shall receive the Journal, ARMOR, without cost other than the annual dues. All honorary members shall receive the Journal, ARMOR, without charge. Junior members shall receive the Journal, ARMOR, at the special membership fee.

4. Any member may withdraw from the Association at the end of any current year by tendering his resignation; and membership shall lapse *ipso facto* upon failure to pay the annual dues; but such withdrawal or lapse shall not operate to relieve any such member from liabilities said member may have incurred prior thereto as a member of the Association.

5. Any person or organization may become a subscriber to the Journal, ARMOR, upon the payment of a subscription price equivalent to the annual dues of the Association, and all such persons who are not regularly admitted and entered as active, associate, junior or honorary members shall be considered merely as subscribers.

ARTICLE III. Officers.

1. The office of Secretary-Treasurer and Editor may be held by one and the same person.

2. The duties of the officers shall be such as usually pertain to their respective offices. The officers may receive such compensation for services performed as these by-laws may prescribe.

ARTICLE IV. Executive Council.

1. The President shall *ipso facto* be the chairman of the Executive Council, and in his absence the First, Second or Third Vice-President, in order.

2. In the event all four of the above officers are absent, the senior council member present shall act as chairman of an Executive Council meeting.

3. Two-thirds of the members of the Executive Council shall constitute a quorum for the transaction of business.

4. A majority vote will govern in all matters acted upon by the Council.

5. The chairman of the Executive Council will provide any or all of the following subcommittees when the Council deems them necessary to carry out the provisions of the Constitution and By-laws:

a. Nominating committee.
b. Auditing committee.
c. Editorial policy committee.
d. By-laws committee.

6. It is desirable that a number of the members of the Executive Council be residents of the vicinity of the headquarters of the Association.

ARTICLE V. Amendment.

These By-laws may be amended or repealed by a majority vote of the members of the Executive Council.

HISTORY, *ESPRIT* and the FUTURE

This article, based on the remarks by General Parks at the business meeting of the Association, is considered of prime interest to all in Armor, hence it is published in total.

IT certainly gives me a deep personal pleasure to extend the greetings of Second Army Headquarters on this occasion of the Armor Association's annual meeting. I feel I am among very old friends here—and I can say quite without exaggeration that old friendships in Armor are about as intense and spirited as you'll find anywhere in the world.

Last fall I saw an example of this enthusiasm. The World Wars Tank Corps Association had a Reunion at Gettysburg—and I think Tom White, the national adjutant, will agree with me that there was never a more lusty and spirited group of people gathered together in one spot than those who attended that two-day session. We've always known that tankers and others associated with Armor were a hardy lot, but it was nothing short of amazing to view the bounce and vigor displayed, especially by the older boys of World War I vintage.

U.S. Army

This spirit of Armor should never be underestimated. I can assure you it is appreciated throughout the entire country. You should have seen the response from the Governors of the forty-eight states and territories when the tankers asked for a pound of soil from each state to use in the planting of a memorial tree at Camp Colt, the first Tank Training Ground.

The Governors went out of their way to vie with one another in paying homage to the Tankers.

Massachusetts, for instance, went directly to the former home of one of the world's most noted tankers, the late General George S. Patton, Jr., to obtain its pound of soil.

Louisiana dug up its earth from the battlefield where Old Hickory and his assistant, Jean LaFitte, defeated the British in the Battle of New Orleans during the War of 1812.

Kentucky turned to Fort Knox, present headquarters of Armor, and to other appropriate places in the state for a representative blend of commonwealth soil.

North Dakota took its soil from Fort Lincoln, headquarters of General Custer's forces before the famous Last Stand at the Battle of the Little Big Horn. South Dakota, from the site of the Battle of the Little Big Horn, when Custer's men died fighting to the last man.

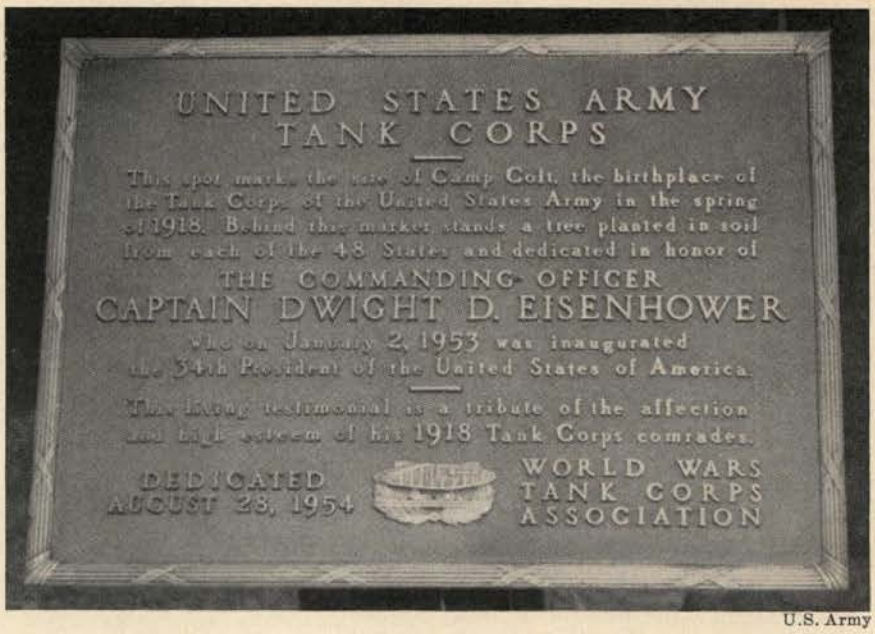
Oregon's earth was procured at Champoeg State Park, site of the first territorial government of the Oregon Territory. It was at this spot that settlers held a meeting to decide whether to join the United States or Britain and ended in a tie vote which was broken when a French-Canadian trapper stepped in on the side of the United States.

I mention these examples to show how the Governors feel about Armor. And this enthusiasm goes right up to the White House itself, which now happens to be inhabited by a former Tanker. As a mark of esteem and appreciation to President Eisenhower, the Tank Corps Association plans to turn over three of the containers in which the soil was shipped, to the President when he moves into his home at Gettysburg.

Paul Roy, Editor of the *Gettysburg Times*, has the containers in his possession and will make the presentation at the appropriate time. One is a large cocoanut from Hawaii. Another is a pewter mint julep cup from Kentucky. And the third is a beautiful polished green marble box from Vermont.

I have given you the rosy side of the picture. In all fairness, I have to add that vandals unfortunately damaged the Memorial Tree in October, chopping part of the tree trunk near the bottom. We don't know who did it, probably some young boys, but Editor Roy assures us that the tree, like the Tankmen it represents, can take a beating and still survive. Tree nursery specialists are working on it and should learn by next Spring whether it will live.

Knowing the courage, endurance and spirit of the tankers as I do, I am certain that if this Memorial Tree has any chance at all it will fight its way through.



UNITED STATES ARMY
TANK CORPS

This spot marks the site of Camp Colt, the birthplace of the Tank Corps of the United States Army in the spring of 1918. Behind this marker stands a tree planted in soil from each of the 48 States and dedicated in honor of

THE COMMANDING OFFICER
CAPTAIN DWIGHT D. EISENHOWER

who on January 2, 1953 was inaugurated the 34th President of the United States of America.

This living testimonial is a tribute of the affection and high esteem of his 1918 Tank Corps comrades.

DEDICATED
AUGUST 28, 1954

WORLD WARS
TANK CORPS
ASSOCIATION

U.S. Army

I am happy to report—since our last Annual Meeting of the Association—that an Armored unit is one of the first organizations to benefit under the Army's new unit rotation plan. We call it "Operation Gyroscope," which means simply that hereafter the Army, whenever possible, will rotate its personnel by units instead of by the system of individual replacements.

The Third Armored Cavalry Regiment, which is at present stationed at Fort Meade, Maryland, will move to Germany as a unit this summer and will be replaced by the Second Armored Cavalry Regiment, which is presently on duty in Germany.

During the post-World War II period, and throughout the Korean conflict, the Army found it more expedient to make individual replacements instead of moving personnel by unit rotation. While this practice proved less expensive in the short-run, it tended to lower morale and to cause a decline in the re-enlistment rate, with the result that over the long-pull even its financial advantages were doubtful.

Now the Army is in the process of reversing this procedure. We know how successful the British have been in maintaining Regimental esprit. It has made the idea of a permanent Army career attractive to many men who otherwise might not be interested. In the Regiment they find the equivalent of a home—a place where they can dig in and grow roots. To many men, this opportunity to escape from rootlessness means more than money or other obvious material gain.

I am proud that an Armored unit is one of the first to participate in this new plan. I think that a good example of Armor esprit is reflected in the fact that up to this date the Third Armored Cavalry Regiment, as a part of Operation Gyroscope, has outdistanced other Gyroscope units in filling its ranks with volunteers for its first rotation assignment. Some thirty-five percent of the total authorization for volunteers—around 938 men—have signed up to go with the unit overseas. This compares most favorably with the ten percent average of other Gyroscope units.

I doubt whether a more colorful unit than the Third Cavalry could have been chosen to set in motion this new plan. Its history dates back more than one hundred years and its membership roster includes many famous names in military history—for example, Kit Carson and J. E. B. Stuart of former days, and more recently the late Jonathan Wainwright and the late George S. Patton, Jr.

We know that when this Armored unit leaves Fort Meade it will go overseas with a high spirit—mainly because its commanding officers have taken pains to cultivate pride in the organization's traditions and history, and because it is moving as a unit.

This matter of cultivating traditions and history is extremely important. At Second Army Headquarters we take great pride in the achievements of Armor. Fort Meade has been considered one of the founding sites of Armor in the United States Army. Many of the original tankers were processed at Meade into the 65th Engineers, the special Regiment which I joined as a Second Lieutenant in February, 1918, and which later grew into the Tank Corps.

I find a good many reminders of the old Corps at Fort Meade. Some 21 streets and roads at Meade bear the names of World War I heroes of the Tank Corps who died in the Somme and Meuse-Argonne campaigns. And since 1942, the famous "Ace of Hearts," the 6-ton Renault light tank which was in action in France, has stood before the Fort Meade Post Headquarters, the same spot which formerly was Headquarters of the famed 66th Infantry.

The "Ace of Hearts" was placed on its pedestal at Fort Meade at a ceremony attended by the then Major George S. Patton, Jr., and Captain, now Brigadier General, Harry Semmes, a DSC winner in 1918 and two-times DSC winner in 1943. It is appropriate that illustrious armored cavalry regiments be stationed at Meade with the "Ace of Hearts" in their midst.

This historic awareness has more than a sentimental value. Today one of the major problems of the Army is to heighten esprit. When the Second Armored Cavalry Regiment rotates to Meade next summer, members of the unit certainly will notice the high respect paid to Armor heroes of the past.

All these reminders—this homage to famous fighting men—create an esprit among our present combat forces. They build up traditions and a residue of historical memories which are as important, in their own way, as first-rate material and first-rate leadership.

Another factor which has been growing in importance since the last Annual Meeting is the Army's building up of the Reserve Components. Second Army is especially concerned with giving punch to the Armor segments of its Reserve program.

Next summer the bulk of Second Army's Reserve and National Guard Armor and all ROTC Armor will train at Fort Knox. The National Guard will send the 29th Division tank units from Maryland and Virginia; the 176th, 150th and 166th tank companies from Virginia, West Virginia and Ohio, respectively; and the 104th and 107th Armored Cavalry Regiments from Pennsylvania and Ohio, respectively.

The Army Reserve also has an ambitious Armor program set out for its summer training at Knox. The armor of the 79th Division will come here from Pennsylvania; as will the armor of the 80th Infantry Division from Maryland, District of Columbia and Virginia; the armor of the 83rd Infantry Division from Ohio; the armor of the 100th Infantry Division from Kentucky and West Virginia, and the 306th Armored Cavalry Group from the District of Columbia.

I mention these units by name to give you an idea of the scope of our Reserve and National Guard training in Armor. I assure you that everything possible is being done to put these units into top fighting trim. If there is one thing Second Army has set out to do, it is to build up its Reserve Components into the best possible fighting shape—and Armor occupies a high priority in this schedule.

I know that throughout this two-day session you will be receiving many briefings by outstanding leaders in the field of Armor, and I certainly have no intentions of trying to compete against them. However, there are a few items which have been developed during the past year which I would like to mention.

One of the more interesting events was a combat vehicle standardization demonstration held at the Detroit Arsenal this month. The standardization program has been evolving since the conclusion of World War II, but the Detroit exhibition marked the first time that the entire family of tracked vehicles were assembled together in a dramatization of the program.

This program of interchangeability is accomplished by developing and using parts that are common to many vehicles. During World War II it was difficult to find two tracked vehicles using common components. Often the same vehicle, such as the M4 tank, utilized as many as five different engines.

Now with the standardization program in effect, savings are being made in production, transportation, maintenance, storage, and training. To give you an idea of the extent of this innovation, during World War II the spare parts requirement for Ordnance engines totaled 36,550 items. Currently, the spare parts requirement totals 8500, or a reduction of 77 percent. Considering the long-term storage costs alone, the savings effected are conservatively estimated in the millions of dollars.

This will have a strong influence on the use of tanks, combat cars, and other types of armored fighting vehicles. The fact that there will be fleets of combat vehicles using common components will make Armor that much more available on the battlefield. Many items such as common hardware, high mortality parts, hydraulic and electrical fittings are now interchangeable in fourteen different vehicles.

This program has its spiritual home in Detroit. It was in Detroit that the idea of "families" of vehicles was first developed. By the application of this principle, automotive manufacturers were able to produce vast quantities of automobiles and trucks that, although different in name and style, enjoyed an amazing degree of interchangeability of standardized basic components such as generators, spark plugs, batteries, hardware, anti-friction bearings and wheels.

The same principle is now being applied in the military establishment. In the case of atomic attack or widespread damage of storage facilities, armored vehicles would be in a better position to continue functioning as fighting units. With a high degree of interchangeability of parts, there would be less chance of bottlenecks all along the line.

Another Armor item of note is the changing silhouette of the tank. It has come down and its shape altered so that it is less vulnerable to enemy fire. The "General Pershing" of World War II still had corners and slopes which were not too good at deflecting shells. Out of that tank grew the M46, the M47 and finally the M48. The latest medium tank is now less squarish and more like the hull of a boat. In fact, the new M48 has a turtlelike turret which has a marked difference from its predecessor, the M47.

All of these items play their part in making Armor an effective weapon in the Army team. You can sum up the total effectiveness of Armor in many different ways. It might be a matter of morale or esprit, as exemplified in the way a member of the Third Armored Cavalry Regiment reacts to a street sign named after a famous tanker of World War I.

Or it may be a matter of unit rotation—whether the personnel of an armored unit feel they have a home in the Regiment and wish to remain with it, no matter where the Regiment might be sent.

Then again, it might lie in the support our Reserve Components are able to give an active unit; or the quickness with which an interchangeable item is procured; or the ricochet of a shell off the boatlike hull of a tank in the heat of battle. It may be any or all of these factors which play a part in making Armor the effective and devastating weapon that it is.

But one thing is certain. It is through meetings of this nature—these annual events of the Armor Association—that the Army is stimulated and continues to be progressive in this most essential branch of the service.

We must never forget that standing behind the steel-pumping tanks and other shell-spitting armored vehicles of the battlefield is a long line of supporting organizations, technicians and personnel, not the least of which is the U. S. Armor Association.

CARDED

PACKET PLATOON TRAINING

by COLONEL MICHAEL POPOWSKI, JR.

This is a report on the Army's latest replacement training system. After 16 months of testing it can be stated that packet training pays off.

All Photos U. S. Army

ARMOR, "The Combat Arm of Decision," is only as good as the individuals that constitute its membership. One of the most important phases of armor operations, therefore, is the training of the individual who enters into this proud and famous fighting branch of the service.

The 3d Armored Division, commanded by Major General Gordon B. Rogers, carries out this training operation. The present system was launched by the renowned "Spearhead" Division in October 1953 in implementation of the Department of the Army's Trainee, Transient and Patient Plan (TT&P Plan). The TT&P Plan is essentially an administrative document. The administrative plan has been extended by the Department of the Army as a result of recommendations from the 3d Armored Division, The Armored Center, and CONARC, formerly the Office, Chief of Army Field Forces. As such, with the super-imposition of Army Training Program 17-600, it represents the Army's directive for the program. The program is a scheme designed to produce a much improved armor replacement for tank and armored cavalry units deployed all over the world. In addition, it was designed to insure the delivery of the armor replacements, in the form of platoon packets, direct to the using units.

Every present day American soldier, whether he is inducted or voluntarily enlisted, first enters into a basic combat training course of 8 weeks duration. This training is accomplished at any of the various training divisions or replacement and training stations operated by the Army. At the completion of this basic training, he is granted 14 days leave, at the end of which he enters into branch individual training. Branch training assignments are made; based

Master Training Schedule ATP 17-600 For Tankers MOS 1795

PART	SUBJECT	TOTAL HOURS	WEEK									
			1	2	3	4	5	6	7	8	9	10
	SECTION II GENERAL MIL SUBJECTS	(51)										
1	DRILL AND CEREMONIES	10	2	2		2		2				2
2	INSPECTIONS	10	2	2		2		2				2
3	COMMUNICATIONS TRAINING	14	4	4	6							
4	PISTOL CAL .45 FAM	8	8									
5	DELETED											
6	MACHINE GUN CAL .50 FAM	4	4									
7	COMMAND CONFERENCE	5(3)*	1	1	(1)	1		1	1	(1)	(1)	
	SECTION III TANK GUNNERY	(258)										
1	TURRET FAM	4	4									
2	MAINT OF FIGHTING COMPARTMENT	10(19)*			6	4		(4)	(5)	(5)	(5)	
3	MECH TNG TANK GUN	14		8	2	4						
4	POWER TRAVERSE	2	2									
5	CREW DRILL	2			2							
6	IDENTIFICATION OF AMMO	2	2									
7	BINOCULAR AND MIL FORMULA	(2)*		(2)								
8	DIRECT FIRE SIGHTS	8		2		6						
9	AUX FIRE CONTROL INST.	6					6					
10	RANGE FINDER M-12	52	6	16	8	12	10					
11	FAM MG CAL .30 M1919 A-4	(2)			(2)							
12	RANGE DETERMINATION	(3)*		(3)								
13	CONDUCT OF FIRE	6		6								
14	GUNNERS PRELIMINARY EXAMINATION	16					8	8				
15	CREW NON FIRING EXERCISE	12					8	4				
16	SUB-CAL MANIPULATION, 1000" TABLE I, PRACTICE	8						8				
17	SUB-CAL ADJUSTMENT PRACTICE	8						8				
18	AUX FIRE CONT EXER TABLE IV, PRACTICE	8							8			
19	SUB-CAL MOVING TARGET 200', TABLE II, PRACTICE	8							8			
20	MOVING TANK EXERCISE, TABLE III, PRACTICE	8							8			
21	BORE SIGHTING & ZEROING EXERCISE, NON-FIRING	4							4			
22	SERVICE FIRING EXER, HE SHOT ADJUST, STATIONARY TARGETS, VARIOUS RANGES, TABLE VI, PRACTICE	12							12			
23	MOVING TARGET, TABLE VII, PRACTICE	8								8		
24	TABLE VIII (RANGE CARD) PRACTICE	4								4		
25	GUNNERS QUALIFICATION COURSE	(56)										
	TABLE I	4								4		
	TABLE II	8								8		
	TABLE III	8								8		
	TABLE IV	4								4		
	TABLE V	8									8	
	TABLE VI	8									8	
	TABLE VII	8									8	
	TABLE VIII, NIGHT FIRING (2)	8									8	
	SECTION IV DRIVING AND MAINTENANCE	(87)										
1	INTRODUCTION & PRELIMINARY INSTRUCTION	28	6	2	20							
2	FAM & INTERMEDIATE DRIVING	16				8	8					
3	FIELD DRIVING	8									4	4
4	NIGHT DRIVING	6						3		3		
5	CREW MAINTENANCE, FIRST ECHELON	20(80)*			(8)	(10)	4 (10)	4 (10)	2 (10)	2(10)	2 (10)	6 (10)
6	WEEKLY SERVICE	4				4						
7	DRIVER QUALIFICATION EXAMINATION	5									2	3
	SECTION V COMBAT SKILLS	(21)										
1	TACTICAL EXERCISE	21		1								20
2	CASUALTY EVACUATION & CREW DRILL	(4)*										(4)
3	VEHICLE RECOVERY AND FIELD EXPEDIENTS	(4)*										(4)
	SECTION VI MISCELLANEOUS	(23)										
1	ORGANIZATION & MISSION TANK UNITS	1	1									
2	PROCESSING	4	2									2
3	COMMANDER'S TIME	18				1		4	1	3	4	5
	TOTAL HOURS	440	44	44	44	44	44	44	44	44	44	44

* INDICATES CONCURRENT TRAINING

NOTE: 50 CAL AA FAMILIARIZATION FIRING CONCURRENT W/ TABLE VII RECORD

Figure 1.

Prepare to Mount.

upon the results of the aptitude tests taken by the individual upon induction or enlistment, upon his wishes, and upon the projected branch requirements of the Army. He may accomplish his branch training at the same station at which he has undergone his basic training, provided that the branch training is available there. However, advanced armor individual training is accomplished only at the 3d Armored Division at Fort Knox. Under abnormal cases this training sometimes is performed in T/O&E units and when this occurs, training is conducted under Army Training Program 17-201 which is of six (6) weeks duration. The advanced armor individual training course, as conducted at Fort Knox, is of 10 weeks length and is prescribed in Army Training Program 17-600. The objectives of this Army training program are:

a. To give the minimum essential Armor branch individual training to trainees who have successfully completed the basic combat training program (Army Training Program 21-114) to qualify enlisted personnel as tankers, MOS 1795.

b. To train the enlisted man to take his place in a tank crew as a fully qualified and proficient tanker, MOS 1795.

c. To qualify the individual to enter combat as a replacement member of the tank crew and to furnish him a sufficient basis upon which to assimilate further training through experience and instruction from more experienced members of the crew.

Army Training Program 17-600 is the bible for the conduct of armor training at the Spearhead Division. It apportions the time to each military subject and it specifies the subject matter that will be covered. The ATP is available to all who are interested and, therefore, except for some small extracts, will not be repeated here. Utilizing the Armor training program as the guiding factor, the 3d Armored Division has arrived at a master training schedule which indicates the training subject, the amount of time to be spent on it, and the week of training in which it falls. This schedule is shown in *Figure 1*. This will give the reader an idea of the scope of the training, the time devoted, and the sequence within the 10 week course of each particular Armor subject.

Trainees are assigned, 4 men to a tank, 5 tanks to a platoon and 9 platoons to a company. Superimposed upon this is one tank commander per tank. These tank commanders are graduates of the previous 10 week training cycle and have been chosen for their leadership and proficiency qualifications. Then platoon officers and platoon sergeants are assigned. If the platoon has been earmarked for overseas shipment, an officer is assigned; however, if the platoon is scheduled for continental United States shipment a platoon sergeant is assigned. This platoon sergeant is furnished by the command to which the platoon is destined. The company overhead consists of 3 officers, one of whom is the company commander, and 33 enlisted men. Thus one Armor training company is composed of:

180 new trainees
45 tank commanders (graduates of previous cycle)
9 platoon officers and NCO's
3 company officers
33 enlisted cadre
---
270 men
and 45 M47 tanks.

There are 20 such companies in the Division; 10 in each of the two Armor training combat commands—Combat Command "A" commanded by Colonel William M. Fondren and Combat Command "B" commanded by Colonel Vincent L. Boylan. These are shown in *Figure 2* as training regiments.

The Spearhead Division was ordered to reorganize shortly after General Rogers assumed command. The reorganization was to be accomplished with a much reduced personnel ceiling to save manpower. As currently organized, the division authorized strength decreased more than a thousand military and civilian personnel since January, 1954; however, the trainee load is larger. The saving was effected by emphasis on the function of command (or better management) and efficient organization.

Two training regiments were assigned the mission of training Armor and were organized identically. *Figure 2* outlines the general organization of these commands. Following sound command principles, the di-

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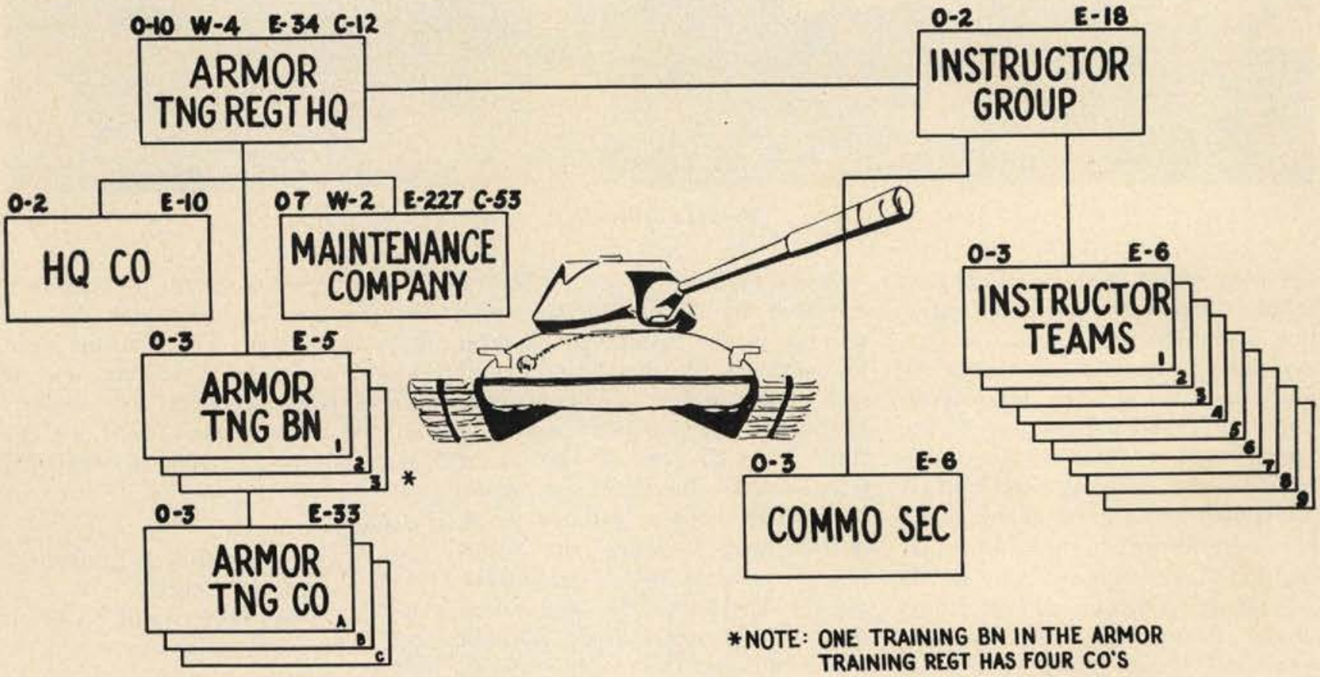
COLONEL MICHAEL POPOWSKI, JR., Armor, served as a platoon, company and subsequently battalion commander of the 81st Reconnaissance Battalion, 1st Armored Division in Europe during World War II. Since the war he has served in Korea as Corps G3. Prior to his present assignment he was Chief of Staff of the 3d Armored Division where he became closely associated with the packet program. He is presently assigned to G3, D/A.

ARMOR TRAINING REGIMENT



*NOTE: ONE TRAINING BN IN THE ARMOR TRAINING REGT HAS FOUR CO'S

Figure 2.

vision commander has given each training regiment commander the training mission and the means with which each can accomplish his tasks. In this way, he can hold each commander responsible for training, administration, maintenance, morale and welfare, etc. of his training regiment. There is no over-all division committee system or cross-committee system (for example, where one training regiment commander has the gunnery training committee and the other combat training regiment has the driving and maintenance training committee). Following the unit training principle, each regiment has its own instructor group which instructs most subjects in the Army training program.

Examining the organizational chart in *Figure 2*, it may be seen that there are nine (9) instructor teams. When an armor training company enters the training cycle, one of these teams joins this company and stays with it until it completes the 10 week course (again this follows the unit training principle). This team instructs in most subjects listed on the master training schedule in *Figure 1*. The exceptions are: (1) The communication section of the instructor group gives the formal communication instruction, and (2) the company officers perform most of the instruction of the subjects listed under the general military and miscellaneous subjects.

There are only 9 instructor teams and 10 training companies. However, since there are only 9 of these companies in training at any one time, the necessity for 10 teams does not exist.

In addition to the instructor group and company officer participation in the instruction, the training regiment commander has battalion commanders who have small staffs to aid in the supervision of training, administration and welfare of the troops in the battalions. The packet platoon officers and non-commissioned officers, and the tank commanders assist in the supervision and actual training. Thus, the trainees receive an abundance of supervision and instruction; providing the unit is not understrength.

Each training regiment is authorized 380 M47 tanks making a total of 760 tanks in the division. This amounts to more tanks in one training regiment than in an entire T/O&E armored division. With the utilization of tank turret trainers and with intelligent arrangement of the master training schedule, tanks are not issued to training companies until they begin their third week of training. By this method, the tank requirement is reduced.

The training schedule must be followed, rain or shine, cold or warm, wet or snow. This requires the tanks to be constantly on the move—more so than in a T/O&E division. Maintenance, therefore, is extremely important. That is the reason for the relatively large maintenance company within each training regiment.

The division commander has inaugurated a project whereby turret trainers are to be moved and housed on the ranges. In this way tank travel will be reduced with the attendant lessening of wear and tear on the main and auxiliary tank engines. This training on turret trainers, such as, range-finding and sub-caliber firing, can be accomplished on the ranges. Under such a plan, tanks will not have to be moved, saving money on POL and maintenance. By stringing power to the ranges and transforming the voltage down to 24 volts, it would be possible to provide each tank with electric power for turret operations and communications. Operation of the main and auxiliary tank engines would not be required, again effecting economy in POL, maintenance and spare parts.

One of the ideas behind the packet platoon system is to instil the group spirit, first, in the tank crew, and second, in crews as part of the platoon. To foster this spirit, the crews and platoons train together, eat together, live together, and finally ship together. As previously explained, the platoon is made up of 25 trainees and an NCO or an officer. When the platoon ships out 5 tank commanders are withdrawn. These individuals go through the next succeeding cycle in that role. The platoon ships, then, with 20 men and a non-commissioned officer or an officer.

Another advantage of the packet platoon system is the fact that the entire platoon reaches its final destination as a compact armor unit. This was not the case prior to this program, because, as individuals, due to their qualifications, they were picked off as they passed through the replacement stream, thus robbing tank units of armor trained replacements.

When the platoon is in transit, there is always a commander (the officer or non-commissioned officer). The packet always travels together. The lonesome feeling present in an individual casual as he is moved through the replacement pipeline does not exist here. Although the benefits of the buddy system are recognized, the packet platoon shipment plan is manifestly much better.

This new system of training and of providing tanker replacements has already paid dividends and has been the subject of many commendatory remarks by field commanders as attested by the following:

GENERAL MAXWELL D. TAYLOR, Commanding General, Eighth Army

> I have been favorably impressed by the packet program and consider that it has greatly improved the quality of replacements received in the Eighth Army since its inception.

MAJOR GENERAL W. M. MILEY, C/S, Office Chief of Army Field Forces

> Three armor platoon packets from the 3d Armored Division were present at Camp Kilmer on 16 August and were inspected by the OCAFF representative. In addition, the platoon leaders and individual members of the packets were questioned as to their training and reactions as members of a platoon packet.
>
> It was reported that the three armor platoon packets presented an outstanding military appearance and displayed excellent military courtesy and discipline. Personnel were enthusiastic about shipping as members of the platoon with which they were trained. Alertness, high morale and esprit de corps was evident in the three platoons.
>
> Especially noted by the OCAFF representative was the confidence the platoon members expressed in their ability to perform the duties required of other tank crew members. This was attributed to the effective training received by the platoon members at Fort Knox.
>
> Platoon leaders of the armor platoon packets knew and understood their responsibilities and duties in connection with the packet shipment and appeared to be well-qualified for their positions.

MAJOR GENERAL G. S. MELOY, JR., Commanding General, 1st Infantry Division

> It is indeed evident that the packet platoon replacement system is furnishing the Army with a more adequately trained soldier than did the individual replacement system.

In the Attack.

MAJOR GENERAL L. L. DOAN, Commanding General, 2d Armored Division

> I would like to point out that we are well pleased with the quality of armor packet platoon trainees received in this Division.

LIEUTENANT COLONEL MARLON G. WILLIAMS, Commanding 35th Tank Battalion, 4th Armored Division

> The state of morale, esprit and personal feeling is much higher in the packet platoon personnel. After reporting to their unit, packet platoon personnel quickly develop a sense of security and a feeling of belonging to a unit.

LIEUTENANT COLONEL THOMAS J. HOWARD, Commanding 322d Tank Battalion (120mm Gun)

> Yesterday we received our tenth packet platoon from the 3d Armored Division, and by the first of December will have two more, which will mean that we shall be the first tank battalion in the Army having all packet platoons in the line.

As of the date of this publication, hundreds of packet platoons have been furnished to armor units all over the world. The records on the results of the training indicate that approximately 95% of all personnel who have been graduated from this system have qualified in both gunnery and driving—a record never before attained and a testimonial to the present commanders.

Reports from the field indicated that there were areas in which improvements could be made; specifically, in communication, in field operations, and in familiarization with the M48 tank. Some readjustment within the master training schedule has been made in order that these subjects will receive more practical application as opposed to theoretical instruction so that emphasis may be placed on these subjects. Recommendations to allow more time in order to permit inclusion within the Army training program of a familiarization course on the M48 tank have been submitted to higher headquarters.

> Although the great majority of units to which packets are assigned are equipped with M48 tanks, it is believed that the M47 is the best available training tank because: there is little difference in the two tanks; the M47 has a 5 man crew as opposed to the 4 in the M48—therefore, in any one given cycle, 20% more men can be trained in the M47; drivers may be trained more effectively and more efficiently; and the M47 is available. To acquaint the trainee with the M48, it is proposed to familiarize him on both the M48 turret trainer and on the M48 itself. The familiarization on the turret trainer is more important due to the fact that the main difference between the two tanks is in the fire control system including the commander's override.

Ready for inspection.

Within the limitations of the current Army training program, improvement is a continuing project; however, any major change, it is felt, must be at the expense of added time to the present 10 weeks. A study recommending the lengthening of the course has been submitted for consideration.

Other comments made by field commanders included the statement that the Armor replacements who have been trained on M47's, had to be retrained on M4's or other types of tanks. This, of course, is understandable and is not a shortcoming of the system.

A misconception with respect to the program, gathered from these reports, was the fact that some commanders thought that this system was a *unit* replacement one, and their remarks were slanted in that direction. It is reiterated that, from the objectives of the program as stated above, it is an individual replacement and training program and not a unit replacement program. It must be remembered that the products of the system have had only 18 weeks training, except for the tank commanders who have had 28, and more experience as to unit training and field operations will have to be undertaken in units themselves.

In summary, the new program can be considered a highly successful one. The replacement tanker who is a product of this system excels, by a very large degree, the graduates of previous systems. In addition the shipment in packets has insured the receipt of trained replacements to Armor units, a hurdle heretofore never completely negotiated.

The Analysis

As reported in the Letters to the Editor column in the January-February issue of *Armor,* the American Institute of Graphic Arts selected our publication for a detailed analysis by a panel of experts in New York City on the sixteenth of February. This panel was composed of five leading art directors in the Graphic Arts field. Namely they were Mr. Charles Tudor, Art Director of *Life;* Mr. Art Kane, Art Director of *Seventeen;* Mr. Henry Wolf, Art Director of *Esquire;* Mr. Robert Cato, Art Director of *Glamour;* and Mr. Herbert Roan, an independent Art Director in the New York area.

Each member of the panel had two different publications to analyze during the course of the evening. This was a simultaneous operation. After each member of the panel concluded his period of critiquing, the entire group assembled and a question and answer session developed many interesting and informative subjects of extreme value to all present interested in the journalistic field.

To analyze *Armor* we were most fortunate to have Mr. Henry Wolf of *Esquire*. His wealth of experience in the graphic arts gave us a most objective critique of the magazine based on layout, design, typography, artwork, cover design and printing craftsmanship. As stated in the initial correspondence from the Institute concerning the analysis, their aims are:

1. To provide those who are interested with suggestions for visual improvements by a group of men of a caliber no single publication could afford to retain.
2. To help with the elimination or reduction of special problems inherent in a given format.
3. To recommend changes in layout, make-up and production techniques where deemed advisable.
4. To act as a highly qualified sounding board and helping hand.

To say that they accomplished their aims is putting it mildly.

To be selected for a detailed analysis by this distinguished panel is, in our way of thinking, an honor in itself. As we see it, there must be an acceptable publication there to start with if the panel is to aid constructively and assist in making it a better product. To our printers, Garrett and Massie, all our contributors, and our membership we give our appreciation. It is a stride forward and as succeeding issues are printed we hope that you will find the magazine more attractive, thus proving that our trip to New York was not in vain.

The Editor

Armor Instruction at West Point

by CADET GEORGE A. BURKHART, JR.

While learning the art of war, a cadet is

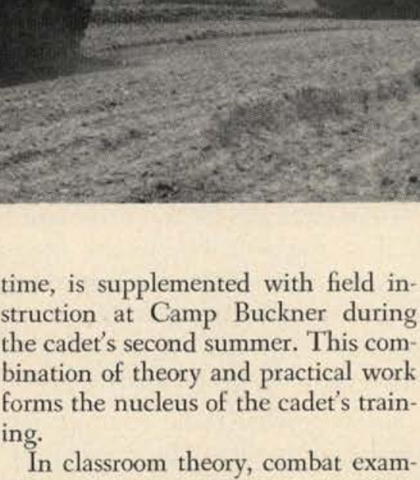
taught to appreciate all members of the combined arms team.

U. S. Army

THE mission of the Armor Section at West Point is to instruct each cadet in the organization, characteristics, and employment of armored units as members of the combined arms team.

In order to accomplish this mission and various secondary missions, the Armor Section at West Point consists of two officers and fifty enlisted men whose task is to instruct cadets, administer and maintain their unit, and to maintain the facilities and expensive items of equipment which are used by the cadets during their field training. Under the direction of Major Kenneth R. Lamison and Captain James A. Day, the Armor Section presents a course of Armor instruction during the four years a cadet is at West Point. The main theme of instruction is the development of the basic armored units in the Armored Division, stressing organization, basic employment, and the capabilities of each unit. This instruction is based on progressive development, beginning with the tank and working up through the section, platoon, company, and finally into battalion level tactics. Academic instruction, which takes up most of the time, is supplemented with field instruction at Camp Buckner during the cadet's second summer. This combination of theory and practical work forms the nucleus of the cadet's training.

In classroom theory, combat examples and map problems are used to provide as much realism as possible. Each cadet participates in the classroom discussion, takes part in solving a practical problem, and compares his solution to that presented by the department. There is never one "approved solution"; however, each cadet is encouraged to arrive at a reasonably sound solution utilizing the fundamental principles covered in classroom instruction.



U. S. Army

CADET GEORGE A. BURKHART, JR. entered the Military Academy from the State of California. He will graduate this coming June.

During a cadet's first year of instruction, he becomes acquainted with the history and background of armored warfare, present organization, and the basic employment of armored units on a small scale. He becomes acquainted with weapons capabilities and limitations, gunnery procedure, and the types of tanks currently in use. He progresses from the individual tank and crew into the platoon level, becoming familiar with principles of employment of the tank platoon as well as the armored infantry platoon, and the reconnaissance platoon.

The first practical instruction for cadets comes at the end of their first year when they move to Camp Buckner on the West Point reservation for field training. Armor instruction here is only a small part of a cadet's overall training in tactics, but he does have several days with the Armor Committee and has the opporfor influencing the course of the war in its initial stages.

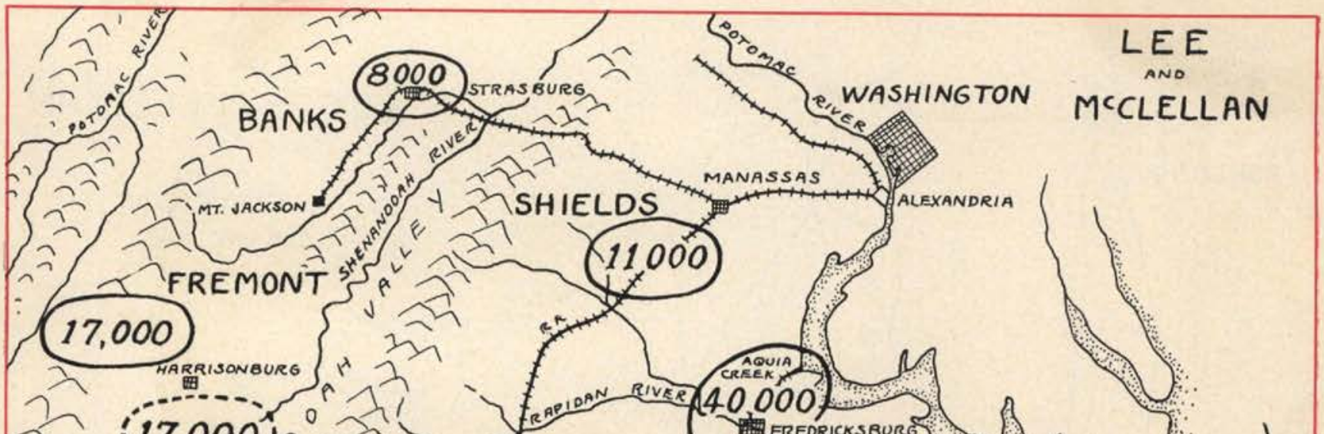
Lee had no super means with which to deliver "massive retaliation" to McClellan's invasion of the Peninsula and attack on Richmond in the spring of 1862, but he did have the necessary military foresight and confidence in the performance capabilities of his army to adopt a strategy in the face of McClellan's overwhelming superiority that utilized Stonewall Jackson's incomparable "foot cavalry" in a maneuver which not only stopped McClellan's drive on Richmond, but threw him off the Peninsula entirely.

The doctrine of "massive retaliation" is effective only to the extent to which a potential aggressor considers the threat decisive against him. When the potential aggressor becomes capable of making a massive strike greater than the massive retaliation, the threat is nullified and the retaliation must include a bold, dynamic and decisive strategy of military maneuver which will bring forth favorable results in the initial stages of the conflict.

Such a situation may face the US in Europe at any time, and a lesson from the strategy of Lee and Jackson in the face of such a massive strike may well give the solution to the problem.

In June 1862, McClellan had landed at Norfolk and was moving on Richmond at the head of an army of 115,000 men, with additional forces totaling 76,000 troops to the north and west cooperating with him. Lee was defending Richmond and Northern Virginia with an army of 90,000 men, including Jackson's Corps in the Shenandoah Valley. (*See Figure 1*). There was no time for the Confederacy to call for reinforcements from states to the south and west. Indeed, they were almost as hard pressed as the Confederate Capital itself. Lee's only hope to counter this massive strike, utilizing the most modern weapons of the day, was bold and aggressive maneuver. Then, even as now, there were two choices: (1) dig in, fortify a good position and defy the attacker to destroy the position; or (2) remain mobile and strike the enemy a critical blow at a place and time of one's own choosing.

These two choices that Lee had can be compared with the two concepts of warfare which are so widely discussed today—the Stabilized Front


LEE
AND
McCLELLAN
8000
BANKS
STRASBURG
POTOMAC RIVER
WASHINGTON
MT. JACKSON
SHENANDOAH RIVER
SHENANDOAH VALLEY
SHIELDS
MANASSAS
ALEXANDRIA
11,000
FREMONT
17,000
HARRISONBURG
17000
AQUIA CREEK
40,000
RAPIDAN RIVER
FREDRICKSBURG
STAUNTON
JACKSON
McDOWELL
ALEXANDRIA
GORDONSVILLE
R.R.
RAPPAHANNOCK RIVER
CHARLOTTESVILLE
YORK
McCLELLAN
115 000
ORANGE
JAMES RIVER
LEE
PAMUNKEY R.
RIVER
73 000
RICHMOND
WEST POINT
LYNCHBURG
APPOMATTOX
CHICKAHOMINY R.
YORK RIVER
JAMES RIVER
PETERSBURG
WILLIAMSBURG
CHESAPEAKE BAY
FT. MONROE
NORFOLK
FEDERAL
CONFEDERATE

THE SITUATION JUNE 1862

FIGURE 1

Concept versus the Mobile Concept. The former visualizes the establishment of a general line of maximum fortifications with defeat of the enemy being brought about in front of or within the main battle position by bringing all weapons to bear in overwhelming firepower. The latter concept relies on maneuver to bring superior power to bear at a critical time and place where favorable results may be obtained. The main strength of the fighting force is held intact at strategic locations to be available, by swift movement, for a decisive blow at the critical time and place.

The latter choice is the one made by Lee, and the choice which the United States and its Allies must make if a massive strike by the Soviets in Europe is to be successfully countered.

Lee's Army of Northern Virginia was organized into two corps of six divisions and four separate divisions, three of which were in general reserve. (*See Figure* 2). Major General John B. Magruder's Corps with three divisions and Major General Benjamin Huger's separate division were deployed to the front with the mission of delaying and holding off McClellan's advance. Major General Thomas Jonathan (Stonewall) Jackson's Corps of three divisions was in the Shenandoah Valley some 120 miles away engaging Fremont, Shields and Banks and threatening Washington. The three separate divisions in reserve, Major Generals Daniel Harvey Hill, James Longstreet and Ambrose Powell Hill, were strategically located near Richmond for decisive movement under the mobile concept.

McClellan's Army of the Potomac was organized into five corps of 14 divisions with a superiority of approximately 8 to 5 in manpower. On June the 25th his line formed a crescent to the east of Richmond with his right beyond Mechanicsville north of the Chickahominy River, the center of New Bridge on the river and his left south of the Chickahominy anchored on the White Oak Swamp. Brigadier General Fitz-John Porter, commanding the V Corps of three divisions, held the right, north of the Chickahominy: Major Generals Samuel P. Heintzelman, Edwin V. Sumner and Brigadier General Wm. B. Franklin, commanding the III, II and VI Corps respectively, were all south of the Chickahominy with Major General Eramus D. Keyes commanding the II Corps in reserve in the center just north of the Chickahominy at the crossing of the York River Railroad

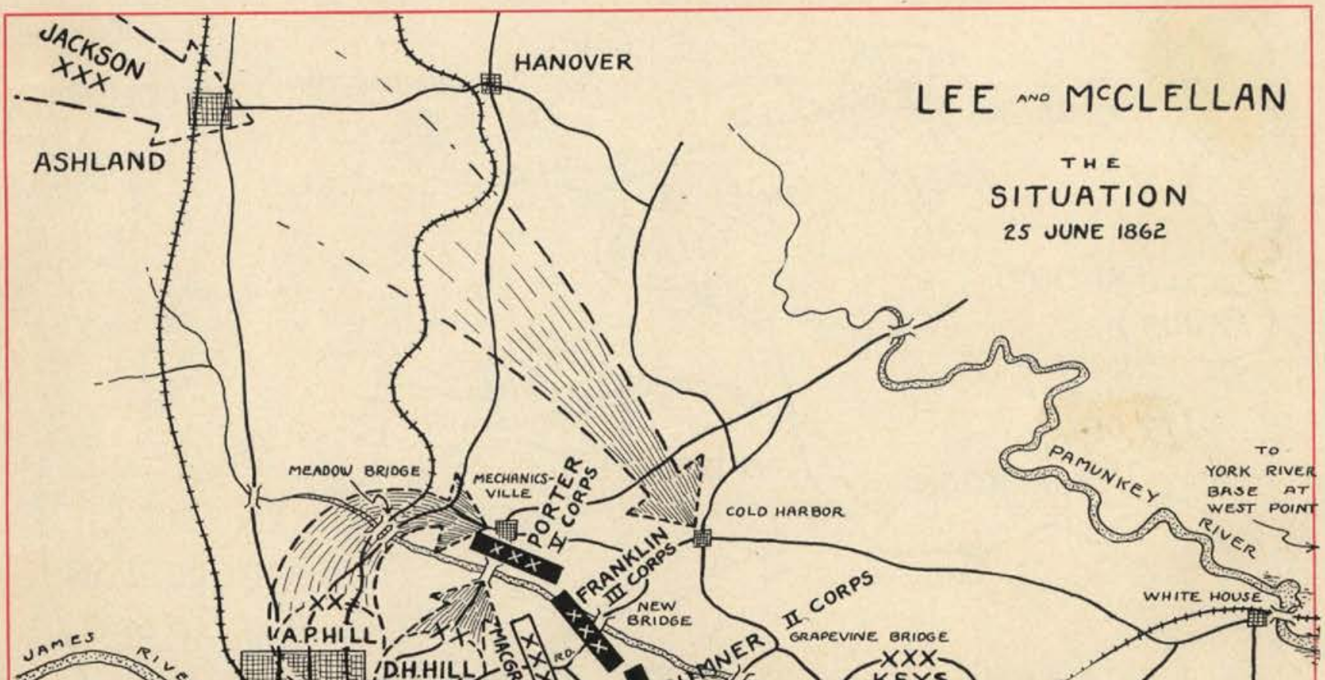

LEE AND McCLELLAN
THE SITUATION
25 JUNE 1862
JACKSON XXX
ASHLAND
HANOVER
MEADOW BRIDGE
MECHANICS-VILLE
PORTER V CORPS
COLD HARBOR
PAMUNKEY RIVER
TO YORK RIVER BASE AT WEST POINT
WHITE HOUSE
FRANKLIN III CORPS
NEW BRIDGE
II CORPS
GRAPEVINE BRIDGE
SUMNER
XXX KEYS IV CORPS
XX
A.P.HILL
D.H.HILL
NINE MILE RD.
MAGRUDER
JAMES RIVER
RICHMOND
LONGSTREET
WILLIAMSBURG ROAD
HUGER
HEINTZELMAN VI CORPS
BOTTOMS BRIDGE
CHICKAHOMINY RIVER
WHITE OAK SWAMP
CHARLES CITY ROAD
DARBYTOWN
LONG BRIDGE RD.
ROAD
FRAYSER'S FARM
MALVERN HILL
FEDERAL FORCES
CONFEDERATE FORCES
DOTTED LINES SHOW LEE'S PLAN OF ATTACK ON THE 26TH.

FIGURE 2.

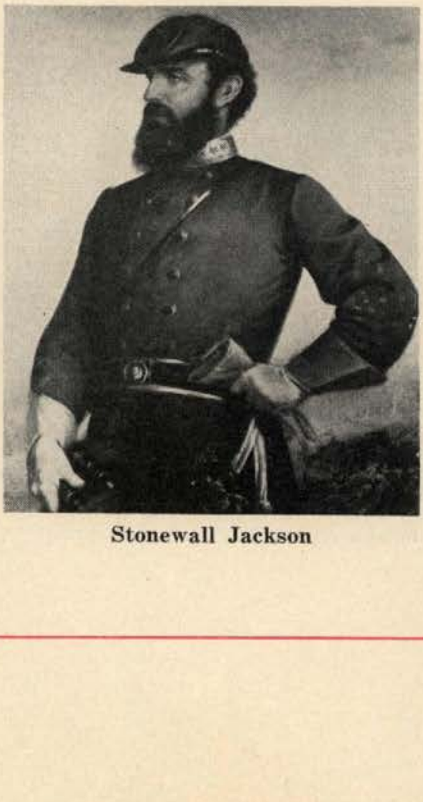
which led back to White House on the Pamunkey River. This railroad was McClellan's line of communication with his base at White House, which provided him excellent communication by water with all points in the North.

Both armies had a cavalry arm, but it was not the horse cavalry that was so vital to success (although JEB Stuart's "Ride Around McClellan" just before this battle took place provided Lee with vital information of McClellan's dispositions), but the relative mobility of the "foot cavalry" that was so necessary in Lee's bold maneuver to save Richmond and strike a blow at McClellan from which the "Little Napoleon" never recovered.

Although the dispersed position of Lee's forces was not dictated by the threat of a mass destruction weapon, such as will be required in an atomic war, he was adhering to well established military principles which apply today. The position of his troops, dispersed as they were, not only gave him maneuverability under the mobile concept, but constituted a threat to the city of Washington, which President Lincoln recognized by keeping the I Corps of 40,000 troops under Major General Irvin McDowell detached from McClellan and interposed between Jackson and Washington. Lee's entire army was capable of being concentrated just as rapidly as Jackson's "foot cavalry" could make the necessary movement. Allied Forces in Europe today must be dispersed in the same manner and for the same purpose as Jackson's presence in the Valley accomplished, but in addition the necessity of avoiding concentrations of troops which form profitable atomic weapons targets requires additional dispersion today. But this dispersion must be accompanied by the capability of rapid concentration and maneuverability.

Lee's plan, as published in General Orders No. 75, June 24, 1862, called for the quick concentration of his army and an attack by the bulk of his force on McClellan's exposed and weak right flank and a rolling up of his line. (*See Figure 2*). Jackson with his Corps in the Valley 120 miles away, was the key to the plan. He must join Lee quickly and secretly to provide the margin of strength at the critical time and place. It was Jackson's job to move his force from its dispersed position, and in Lee's own words, "—at the proper time suddenly descend upon the Pamunkey." Secrecy was of the utmost importance. Lincoln must not be alarmed and reinforce McClellan, McClellan must not be alarmed and correct his faulty position astride the Chickahominy. That Jackson accomplished this movement in what was then thought to be an impossibly short time is a matter of history, but that our own modern forces can also move into concentration for a critical maneuver in what some now think to be an impossibly short time is the lesson we must learn. Jackson started his march from the Valley on 20 June and five days later his corps was at Ashland on McClellan's right flank, unknown to McClellan and ready for the attack.

George B. McClellan



Stonewall Jackson

The Federal generals with whom Jackson had been engaged in the Valley, Shields, Fremont and Banks, were absolutely ignorant of his whereabouts. Lincoln, McDowell and all the Northern Press thought Jackson was still west of the mountains. Though the Federal generals knew that a blow was being prepared, not one could give a satisfactory answer as to where to expect it. Indeed, Jackson had been fighting McClellan for 48 hours when Banks at Strasburg, some 150 miles away, wrote a dispatch in which he stated that he believed that Jackson was preparing an attack on him.

On the morning of 26 June, however, Jackson's command moved from Ashland toward Cold Harbor between the Chickahominy and Pamunkey and started the maneuver which was to wreck the plans of McClellan to capture the Confederate Capitol. At 1500 the same day A. P. Hill's division south of the Chickahominy on the Confederate left forced a crossing at Meadow Bridge and advanced on Mechanicsville, McClellan's extreme right. By nightfall the Mechanicsville Bridge had been uncovered and the divisions of D. H. Hill and Longstreet were put in motion to cross the stream. By 10 o'clock the following morning, Jackson, D. H. Hill, A. P. Hill and Longstreet were moving steadily upon Porter's retreating forces. Jackson's position on the Federal flank, coming so suddenly and so unexpectedly, threatening the line of communications to White House on the Pamunkey, forced McClellan to make the decision to abandon his base on the York River at West Point and transfer it to Harrison's landing on the James River. The Seven Days Battles ensued in which McClellan's massive strike at Richmond was decisively countered and the Army of the Potomac withdrawn from the Peninsula.

By such skillful use of all means at his command, the boldness of his execution of the march and the dogged determination of the troops, Jackson accomplished superior mobility on the battlefield and provided Lee with the margin of strength needed at the critical time and place to take advantage of McClellan's faulty position and drive his superior force from the field. By this skillful maneuver, Lee, who was outnumbered eight to five in total strength, massed 60,000 of his troops for the decisive attack on Porter's Corps of 27,000 thus attaining superiority of force at the time and place of attack. With similar vision in planning for new, light, mobile equipment and boldness in execution, Allied Forces of the future, dispersed as they must be to avoid being remunerative atomic targets and positioned so as to gain the most profitable military posture, may be concentrated swiftly and effectively to provide the margin of strength at a critical time and place to counter any massive strike by the Soviet Colossus.

I say "*may* be concentrated swiftly and effectively" because the means to accomplish this movement are not in the hands of the military forces at the present. Jackson had his incomparable "foot cavalry" to give him relative superior mobility over the Federal forces which might have interposed between him and Lee, but Allied Forces today have no means in being to provide relative superior mobility. Indeed, the mechanized forces of the Soviet Union in Europe not only equal the mobility of NATO Forces, but in some respects may actually be superior.

It was Major General James A. GAVIN, ACofS G3, Department of the Army, who put his finger on the solution with the statement, "Cavalry, and I don't mean horses." The historic characteristics of cavalry have always been mobility, shock action and firepower. In addition to its reconnaissance role, cavalry has always been the arm of decision. It provides the decisive shock action by utilizing its superior mobility and firepower at the critical time and place. As General Gavin said further, "What we now need, as a nation, is an understanding of the past that can be converted into tactics and battle hardware, and give its soul back to the cavalry."

Armor of today, the successor to the cavalry, has the three characteristics of cavalry—mobility, shock action and firepower—but the first and most important of these characteristics, mobility, the very soul of cavalry, is always relative. The horse gave cavalry its relative superior mobility for several centuries until the machine gun and mechanized transport made him obsolete as a means of military movement. Military leaders throughout the ages have constantly striven to gain superiority in mobile warfare, and in this modern machine age faster and more efficient means of movement are constantly being developed. The Germans enjoyed this relative superiority with their tank when they overran France and The Low Countries in 1940. They attained it again when they captured Crete by an airborne attack in 1941. But the modern tank, with its burdensome armor, has now lost its relative superior mobility in the race to mechanize the entire army. It can get there no quicker than the infantry which accompanies it. Recent trends in its development have been aimed at improving its anti-tank and support capabilities at the expense of mobility. The desire to be invincible, by the addition of more armor, seems to overshadow the paramount need to be agile and mobile on the battlefield. Armor in the future will not win the day in a slugging match. Such an action would resemble too much the fight between the gingham dog and the calico cat. Heavy tank development has reached the same point as the armored and fully accoutred knight of the middle ages—mobility has been lost through the addition of excessive weight.

The future of armor, and indeed the success of our arms in an atomic war of the future, depends almost entirely upon the relative superior mobility which can be attained by our forces. Our success will be in direct proportion to the ability of our military leaders of today to boldly plan for new equipment to restore to armor, the successor of cavalry, relative superior mobility on the battlefield, and in armor's ability to do, as Jackson's "foot cavalry" did, the seemingly impossible when the critical time and place occur.

President Lincoln visits McClellan's headquarters, The Potomac Army.

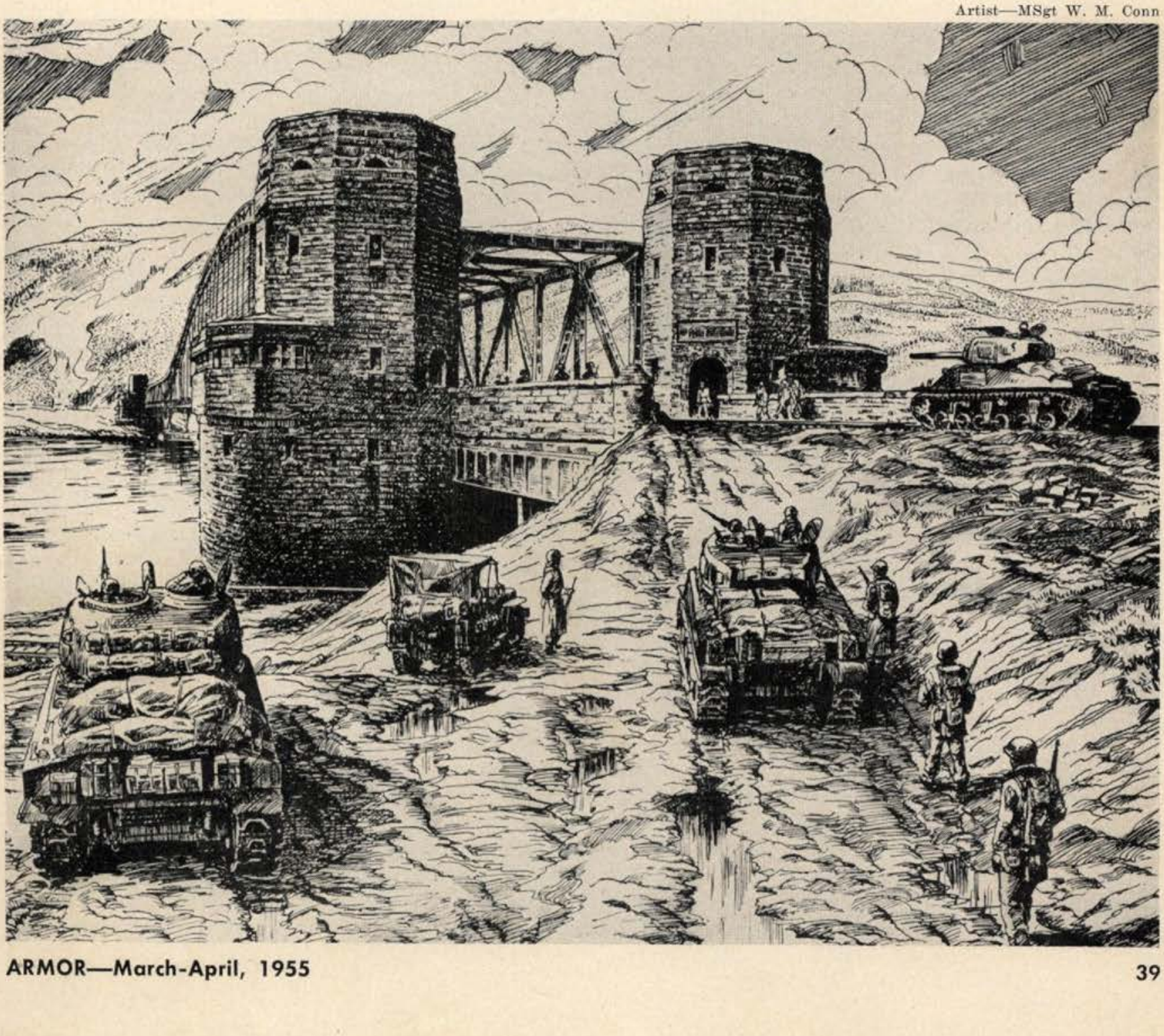
THE REMAGEN BRIDGEHEAD

"Gentlemen, I have asked you to come in here this morning because you know old soldiers' minds are bound to turn back once in a while to dramatic events of war—particularly of the kind that took place at the Remagen bridgehead.

"Now, of course, that was not the biggest battle that ever was, but for me it always typified one thing: the dash, the ingenuity, the readiness at the first opportunity that characterizes the American soldier.

"You men are only a typical group of the great forces that were in Europe, but it did seem to me that here, on the 10th anniversary of the day you went across the Rhine, you might not mind coming in and saying hello to the man who was responsible for directing this whole over-all strategy." * * *—DWIGHT D. EISENHOWER to Survivors of Remagen Bridgehead.

Artist—MSgt W. M. Conn



U. S. Army

(L to R, seated) George P. Soumas, Charles W. Miller, President Eisenhower, General Carl Spaatz (Ret), U.S. Air Force, Anthony March. (L to R, standing) William J. Goodson, Michael Chinchar, Colonel Leonard E. Engeman, Lt. General John Leonard (Ret), Alexander A. Drabik, Anthony Samele, Joseph S. Petrencsik, John Grimball, Secretary of the Army Robert T. Stevens, SFC Joseph Delisio, Major Hugh Mott NGUS, Major Emmet J. Burrow NGUS, Eugene Dorland, Dr. Kenneth Heckler, Historian on the Remagen, Deputy Secretary of Defense Robert Anderson.

THE living heroes of the spectacular Remagen bridge seizure, an event that hastened the victory in Europe during World War II, were honored at the White House and at the Pentagon on March 7—the 10th anniversary of the historic event.

President Eisenhower received the group at the White House in the morning. Later they went to the Pentagon to meet their Senators and Congressmen and attended a luncheon with high Department of the Army officials.

Those invited included the 11 living men of the 13 who received the Distinguished Service Cross for the operation and four others who as officers played leading roles at various levels of command.

The *Army Times,* an unofficial military publication, paid the expenses of the trip to Washington for those in the group who could not make the journey in a military status.

The two DSC winners who are now dead were Karl H. Timmermann of West Point, Nebraska, who was the first officer to cross the captured bridge, and John A. Reynolds of Lincolnton, North Carolina.

General William M. Hoge, retired, who commanded Combat Command B of the 9th Armored Division, which made the initial crossing of the Rhine, is now in Spain.

The seizure of the Remagen bridgehead by the 9th Armored Division on March 7, 1945 was one of the decisive moments in the campaign to crush the Nazi war machine. The accomplishment is cited in military textbooks as a prize example of how the extreme bravery and initiative of a few individuals can change the course of a major campaign.

General Omar N. Bradley, then commander of the 12th Army Group, in congratulating the 9th Armored Division said of the operation:

"This bold advance, characterized by able willingness to chance great risks for great rewards, speeds the day when our full force can come to grips with the enemy."

General Eisenhower, writing of the crossing in his book *Crusade in Europe,* called it "one of those bright opportunities of war which when quickly and firmly grasped, produce incalculable effect on future operations."

Capture of the Ludendorff railroad bridge at Remagen, which enabled the Allies to burst with stunning power eastward from the Rhine into the heart of Germany, climaxed a swift dash by the 9th Armored Division's combat commands from the Roer river.

General Eisenhower, the Allied Commander, had ordered his commanders to be alert and grasp any opportunity to seize crossings over the Rhine.

General Leonard conferred with General Hoge, and they decided that if the Remagen bridge were found intact, Hoge's Combat Command B would send troops across and establish a bridgehead on the east bank of the Rhine.

The North task force of Combat Command B, commanded by Lieutenant Colonel Leonard W. Engeman of the 14th Tank Battalion, had the mission to take Remagen and Kripp. The force included the 14th Tank Battalion, less D Company, the 27th Armored Infantry Battalion commanded by Major Murray Deevers, one platoon of C Troop of the 89th Cavalry Reconnaissance Squadron Mechanized, part of the 9th Armored Engineer Battalion and other units.

When Colonel Engeman, the task force commander, came out on the high hill overlooking the Rhine at Remagen, he saw through his binoculars that German vehicles were still tunity of putting into practice what he has learned in the classroom during the preceding year.

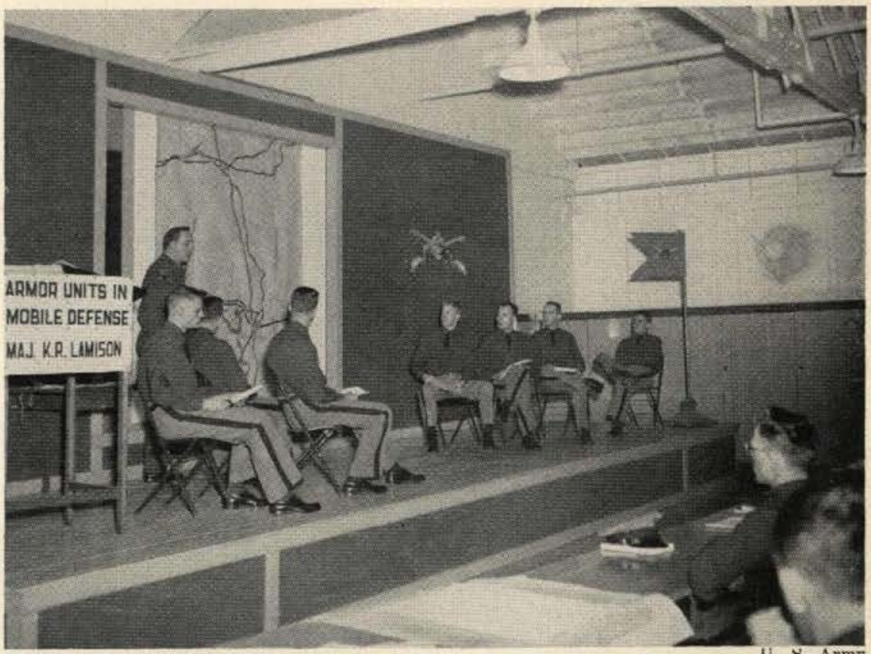
At Camp Buckner, cadets are given actual driving instruction in the M48 tank, firing of the co-axial machine gun from the turret trainer, range finder operation, and communications instruction. The familiarization is not meant to qualify each cadet as an armored officer, but to let him get the feel of various items of equipment and become familiar with tank capabilities. The culmination of the armor phase of field training is an attack problem. Each cadet is assigned a position from platoon leader and tank commander to driver and is taken through a platoon problem. Here the cadet brings together his classroom theory and practical work taught previously and can see how it forms a potent fighting team on the battlefield. He finds out how much there is to learn about fighting in an armored unit. Assembly areas, attack position, march formation, lines of departure and attack formations become realities to the student instead of places on a map or overlay. The Armor Section is supplemented with personnel from Fort Knox for this summer training in order to give as much personal and individual instruction as possible. First Class (Senior) cadets are assigned to the committee to aid in instructing during this expanded program.

During the cadet's Second Class (Junior) summer he receives Combined Arms Training at Fort Benning as well as Naval and Air Force instruction at Norfolk, Va., and Maxwell and Eglin Air Force Bases. Also, during this year, he again returns to the classroom for a bigger chunk in this progressive plan of development. He is now at the company level of operations, learning the organization and employment of company-size units. He studies the tactics of the reinforced tank company in offensive operations, learns the types of offensive formations and principles of the coordinated attack. The study of the principles of mobile defense, defensive operations of the reinforced company, and the retrograde movements follow in that order.

At the beginning of his First Class (Senior) year, the cadet is taken on a training trip which includes a visit to Fort Knox as well as several other major installations around the country. Fort Knox presented an excellent program last year which included driving on the obstacle course, road marches, firing the 90mm gun from the M48, and several lectures on future developments of armored warfare. At the conclusion of the short visit, a demonstration was put on by the school to show the capabilities of the combined-arms team. Tank, Infantry, Artillery, and Air Force units worked as a team in an attack problem giving the cadets the overall picture of this coordination.

During the cadet's final year of instruction he returns again to the classroom to work with battalion-size units. This again includes organization for combat, offensive and defensive principles, and a glance into the future of Armor in the atomic age of warfare.

There has been criticism that cadets, upon graduation from the Military Academy, are not fully qualified as Armored officers. This criticism is justly made, for a cadet, upon graduation, is *not* a fully qualified Armor officer. It may be well to point out again the mission of the Armor Section—to instruct each cadet in the organization, characteristics, and employment of armored units. In other words, every cadet is subject to the instruction outlined above. A cadet does not pick his branch assignment until March of his final year. His tactics course has included instruction in all the combat branches plus familiarization in many of the services. Armor instruction consists of only thirty-three hours of a four hundred and eighty-nine hours tactics course during his four years, less than 7% of the total. A cadet's branch choice depends upon his academic standing for three and one-half years of a Bachelor of Science course. Unless a cadet stands relatively high in his normal course of studies he often does not get the branch of his choice at the beginning of his career, though he may transfer at a later time. He has become familiar with all the branches and the Air Force so that his education for service will give him a better understanding of other branches in future years.


ARMOR UNITS IN MOBILE DEFENSE
MAJ. K.R. LAMISON

U. S. Army

Classroom theory is important and provokes much thought among the students.

Armor's future is apparent in this year's graduating class. From early indications, Armor seems to be one of the top choices with the cadets this year. This speaks well for the time and effort put forth by the Armor Section at West Point to provide Armor with the best material possible. Those graduates who will soon be taking their basic course at Fort Knox, like those that have gone before, are ready and eager to take part in this, the Arm of Decision.

Planning and scheduling must be exact to fulfill the many requests for exhibits.

Putting finishing touches on famed "Breakthrough at Chipyong ni" display.

The Army Exhibit Unit

by SFC Walter MacMillan

It is the policy of the U. S. Army, through the Office of the Chief of Information, D/A, to keep the American people as completely informed about their Army as possible. Within the framework of that policy, the U. S. Army Exhibit Unit performs a specialized mission. This is to present to the American people on a broad, nation-wide basis, through the medium of exhibits, displays, and other appropriate means, the objective and mission of the Army; progress made; public benefits from a peacetime Army, including occupation duties and the functioning of Military Government; the Army dollar and how it is used; and the need of an Army for national security.

The Army Exhibit Unit has presented dozens of displays in every area of the country. Though it is desirable for every citizen to visit the exhibit, problems of transportation and the ability to be in only one place at a time limit the number of potential viewers.

Fairs and expositions have been natural sites to display exhibits because they allow the greatest number of people to see them at a given time. Through these appearances the Exhibit Unit delivers its message to the people.

At the headquarters of the unit in Cameron Station, Alexandria, Virginia, a staff of specialists design, fabricate, and transport the exhibits. Attending each showing is a complement of personnel who erect and maintain the exhibits, and answer questions of the public.

In coordination with the Pentagon, the original idea for a new project is mapped out. As with any project, the personnel, intelligence, logistics, and material to be used are considered.

Information as to where these exhibits may be obtained can be secured by writing to the Chief of Information & Education, D/A, Washington 25, D. C.

All Photos U. S. Army

Modeling the well-known "Remagen Bridgehead" diorama in "3D" effect.

Making these tank models to appear authentic is exacting and tedious work.

A display must have that professional look to include the descriptive signs.

Checking completed work for accuracy of a model of Army's latest—the 280mm cannon.

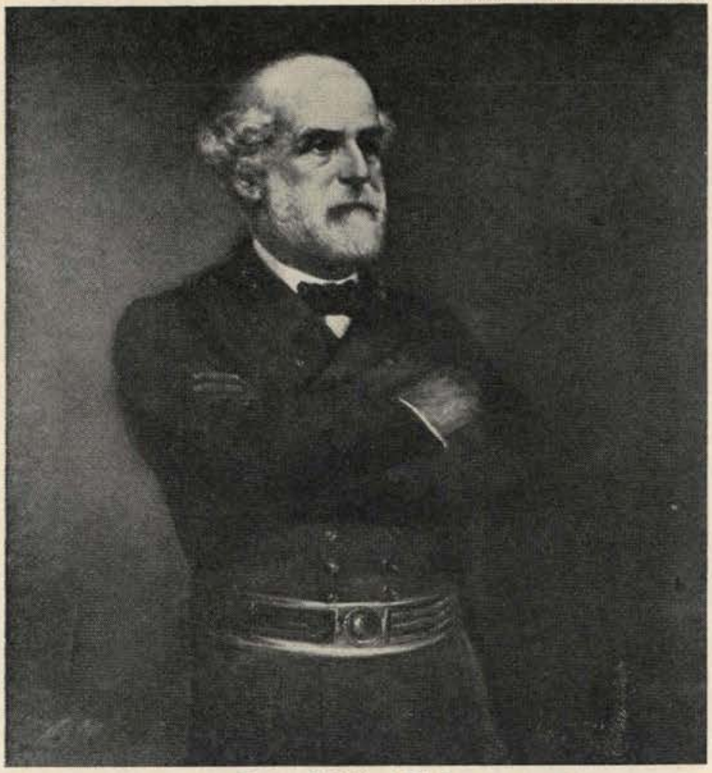
Plaques depicting branch insignia and other governmental offices are molded and painted.

Explaining the functioning of a tank engine to the public.

Ten million people witnessed the unit's projects last year.

CARDED

All photos Library of Congress



General Robert E. Lee

Out of the past...

by COLONEL WILLIAM MARSHALL SLAYDEN II

A MASSIVE offensive Army was being built to the north and east. It was poised for a strike at any moment, and the defenders of its objective were divided and beset with the problems of welding together a fighting force from many states capable of stopping this powerful military force before its crushing onslaught completely destroyed the defender's way of life.

Suddenly this Army, the world's most powerful field army ever assembled under one command, struck. This was the situation in the spring of 1862 when General Robert E. Lee, commanding The Army of Northern Virginia, executed a military maneuver against Major General George B. McClellan, commanding The Army of the Potomac. This maneuver was not only a masterpiece in tactics and strategy utilizing military equipment of that day and time. It also pointed the way to future military strategy in the atomic age.

COLONEL WILLIAM M. SLADEN II, Armor, served in Europe during World War II with VIII Corps and later as G2 of the 11th Armored Division. Subsequent to the war he served in various assignments in the U.S., Europe and MAAG, Indo-China. He is presently the operations officer, Combat Developments Group, Continental Army Command, Fort Monroe.

The development of nuclear weapons with their mass destruction capabilities has rendered obsolete the tactics and strategy utilized in World War II. No longer can the US rely on its strategy for the two last wars—initial defense while exchanging space for time, mobilization and buildup of striking power, counteroffensive for victory. The demands of the atomic war of the future will be such that the war may well be over before full scale mobilization could get under way, unless new strategy is developed fleeing over the bridge to the east.

Colonel Engeman immediately sent a platoon of the new Pershing 90mm tanks down the winding road into Remagen. The tanks, from Company A of the 14th Tank Battalion, were commanded by First Lieutenant John Grimball. Accompanying the tanks were dismounted troops of Company A of the 27th Armored Infantry Battalion. Their half empty half-tracks brought up the rear.

While these forces were fighting their way through Remagen, information was obtained from a prisoner of war taken inside the town and from a civilian, that the bridge was scheduled to be blown at 4:00 P.M. These reports were sent to General Hoge.

At the same time, General Hoge received an order to concentrate on a drive to the South to link his forces with those of the 4th Armored Division in order to trap German troops west of the Rhine. This faced General Hoge with the choice of following the order or trying to cross the river with its danger of his troops being blown up with the bridge. He decided to go ahead with the crossing. General Hoge rushed back to Division headquarters and got 100 per cent backing from General Leonard to exploit the crossing potential.

General Hoge immediately ordered Colonel Engeman to take the bridge. It was 3:15 P.M., only 45 minutes before the 4 P.M. deadline.

Colonel Engeman, checking the progress of his force, messaged Lieutenant Grimball:

"Get to the bridge as rapidly as possible."

The South Carolina lieutenant replied:

"Suh, I am already there."

The Germans, in the face of the onrushing Americans, frantically began trying to destroy the bridge immediately. They set off two charges.

One charge blew a crater in the western approaches to the bridge on the roadway. This crater, 30 feet wide and 12 feet deep, as the Germans later said they had calculated, held up the advance of tanks for eight hours.

Blocked, Lieutenant Grimball's tanks took up firing positions near the bridge. When the 27th's Company A infantry raced to the west end of the bridge, the time was 3:50 P.M., only 10 minutes before the Germans were expected to set off their demolitions.

Lieutenant Karl H. Timmermann's infantry had scarcely set foot on the bridge when the Germans set off the second demolition, which sent steel and timbers hurtling into the air. It raised the bridge from its foundations and all but dropped it into the river. Lieutenant Timmermann halted his men, investigated, found the bridge still standing and ordered the attack continued.

The second explosion had knocked out one of the principal diagonal supports on the upstream side of the main arch of the bridge. It destroyed a section of the bridge flooring and left a 6-inch sag at the damaged point.

The cap on a 500-pound TNT charge set up with time fuses near the north railing about two-thirds of the way across also went off, but the charge failed to explode.

As the men of the 27th dashed across they got covering fire from the Pershing tanks drawn up around the west end of the span. Despite the threat of more explosions, the infantrymen kept going.

Three members of the 9th Armored Engineer Battalion hurried onto the bridge to prevent the Germans, if possible, from setting off any further explosions. They were First Lieutenant Hugh Mott, Staff Sergeant John Reynolds and Sergeant Eugene Dorland. The engineers rapidly cut all the wires connected to a 40-pound charge below deck. Then they sped across the bridge to cut the main cable. The cable would not yield to the small pliers carried by Sergeant Dorland, so he fired three shots into it from his carbine, smashing the main hookup.

It was found afterwards there was enough explosive on the bridge to destroy even a much larger structure.

As the 1st platoon of Company A, led by Technical Sergeant Michael Chinchar and Staff Sergeant Anthony Samele, worked its way across, it was stopped by machine gun fire from two stone towers at the other end of the bridge, a sunken barge in the river and the railroad tunnel at the east end. Lieutenant Timmermann called up his third platoon, led by Technical Sergeant Joseph DeLisio.

Sergeant DeLisio broke into one of the stone towers, cowed five German soldiers into submission, threw their weapons into the river and sent the Germans back as prisoners. Sergeant Chinchar knocked out the gun in the other tower. While the two Americans were in the towers, their

U. S. Army

Mr. Stevens, Col. Engeman, General Ridgway, Mr. Drabnik, and Col. Heckler.

U. S. Army

Lieutenant General Leonard and Mr. Stevens.

comrades raced on across the bridge.

Sergeant DeLisio's reserve squad, headed by Staff Sergeant Joseph S. Petrencsik and Sergeant Alex A. Drabik, led the way. Sergeant Drabik barreled past everyone to be the first man across the bridge.

As the men reached the east end of the span, some veered to the left, others moved straight ahead into the railroad tunnel to clear it of the enemy.

After the crossing came the battle of Flak Hill. Lieutenant Emmet Burrows took his second platoon up the sheer cliff above the eastern bank. For several hours these men, along with others of the 27th, held the Remagen bridgehead.

Lieutenant Burrows and his men had only their rifles and carbines and one machine gun. They clung to roots on the hill while the Germans shot down at them. The enemy troops tried to dislodge the tenacious Americans by rolling rocks down the face of the cliff.

While the Americans hung on, a German flak wagon in the rear opened up on them with four 20 millimeter guns. One man fell to his death on a rock ledge far below the summit of the cliff. But the men of the 9th hung on there until they were relieved after dark.

Under darkness, Captain George P. Soumas's Company A of the 14th Tank Battalion began to move across the bridge. The lead platoon, under 1st Lieutenant Charles W. Miller, led the way, spearheaded by a tank commanded by Sergeant William J. Goodson.

There remained the danger that the Germans might wait until Combat Command B got most of its troops across the river and then counterattack in such force as to destroy the bridgehead and the men in it. There also was the possibility that the enemy might be able to destroy the bridge and leave the troops of the 9th stranded and at the mercy of strong German forces. The American commanders did not know for certain the enemy strength.

Despite these risks, General Leonard instructed General Hoge to go ahead and expand the bridgehead.

Enemy reaction to the 9th's seizure of the Remagen bridge was extremely violent. The Germans counterattacked savagely with tanks and infantry as soon as they could wheel into position. They hurled a storm of artillery fire and bombs at the bridgehead. Troops were pulled from other fronts in desperate effort to halt the Americans. Scores of Luftwaffe pilots were sent on suicide missions to knock out the bridge. The German fliers, pursuing their reckless tactics, were able to obtain hits and near hits, but they were not enough.

The Germans sent mines floating down the river, hoping they would hit the railroad bridge or the pontoon structures that were being thrown across nearby. They even employed especially-trained swimmers who paddled down the river in rubber suits towing heavy charges of floating explosives.

The Americans brought in nine antiaircraft automatic weapons battalions and four antiaircraft gun battalions for protection of the bridge site—one of the greatest concentrations of antiaircraft artillery ever assembled in so small an area.

Barrage balloons were brought in and continuous air cover was flown over the bridge. Contact, log and net booms were constructed across the river to intercept waterborne objects. Depth charges were dropped at an average of 12 per hour each night to discourage underwater swimmers and submarines. Radar was employed to detect underwater craft. River patrols were maintained and shore patrols were on 24-hour alert. At night, powerful lights illuminated the surface of the river while high velocity guns were trained on all objects floating downstream.

For 10 days the bridge withstood all enemy action. Heavy military traffic poured across. After the bridge had served its usefulness to the allied cause, on March 17, 1945, it suddenly toppled into the Rhine carrying with it nearly thirty engineer troops who were trying to repair it.

In the 10 days that the railroad bridge had been in use, several pontoon bridges across the Rhine had been completed. There was no longer any vital need for the Ludendorff span.

The springboard had already been built up. The bridgehead had become a powerhouse. The payoff came when the American armored juggernaut burst out of the bridgehead and raced to the east and then to the north. The Ruhr was sealed off, trapping more than 300,000 German troops. The bravery and sacrifice of the men of the bridgehead battle were credited with saving thousands of lives and shortening the war. Two months later the Nazi regime surrendered.

COMBAT ARMS SCHOOL SELECTION

CONSIDERING the legendary apathy of youth toward "school" it is paradoxical to observe the interest and concern most officers evidence toward their opportunity for attendance at military schools and colleges. This reversal of interest, both natural and commendable, has its foundation on many facts—the primary one doubtless being the officer's sincere interest in developing his potential to the Service and enhancing the probability of his own advancement.

The military service school system has proven beyond dispute its importance in developing necessary leadership in the defense establishment. It is possible, however, for the individual to distort the real influence attendance or non-attendance at a certain school will have upon his career. This condition is particularly true if the fact is overlooked that formal military education is used only as a means of imparting military knowledge to offset deficiencies of actual experience. While attendance at military schools is a desirable facet in an officer's career, it is not in itself the final goal. Our large Army offers opportunities for practical experience that is the equivalent of the concentrated teachings of the schools. In the final analysis the recognition an officer receives depends upon his accomplishments.

Regardless of how the reader perceives and evaluates the Army school system, he cannot help but recognize the complexities devolving on Career Management Division in the selection of individuals to attend the career service schools. Some of these include the establishment of an order of merit among eligible officers, the coordination of assignments with school attendance, the maintenance of uniformity of criteria, and the measurement of each individual's potential. As a solution to these problems, the Combat Arms branches of your Career Management Division have developed a systematic approach to the selection of officers for career schools. The standard scoring system devised gives weight to such factors in an officer's record as the level of the command positions which he has successfully filled, the degree of responsibility exercised by him as a staff officer, the amount of time he has spent with troops and in combat, the periods spent as an instructor, and the manner in which all assigned duties were performed.

Such an evaluation of each record has the virtue of being both objective and uniform in its approach, and when coupled with mature judgment, should detect those intangibles which properly separate the best qualified from the whole in any competition.

Provision is made for separate consideration of specialists to compensate for the fact that their careers will not reflect the variety of assignments available to those not restricted by specialization.

Cognizance is taken of the "hump" year groups so that an officer's opportunity for selection for school will not be adversely affected by the fact that he may have a disproportionately large number of contemporaries. This "fair share" distribution of available quotas gives all officers initially the same mathematical probability of selection prior to the qualitative comparison of records.

A by-product of the standard scoring system is the capability of the career branches to project with greater certainty those who will probably attend a selected school in the succeeding two or three years and whose assignments can thus be coordinated to permit attendance in conjunction with a normal permanent change of station. This projection has numerous advantages which accrue to the service and the individual in the form of greater stability, longer planning time and early notification to the officers selected.

Through reliance upon a uniform, systematic approach to school selection, the Combat Arms branches of Career Management Division emphasize the importance of the individual officer's record speaking for him in the keen competition for school attendance.

Digest of Facts Relative To Education of Regular Army Officers Of Combat Arms

	Eligibility Factors				Approx %		
College	Years Promotion List Svc	Age	Grade	Prior Education Required	RA Officers of C/A Who Will Attend	Numbers Now Attending	Approving Authority
NWC	15-25	—	—	C&GSC	2.4	29	Chief of Staff
ICAF	15-25	—	—	C&GSC	.5	6	Asst Secy of Army
Army WC	15-25	—	—	C&GSC	10.0	118	Chief of Staff
Naval WC (2d Yr)	15-25	—	—	C&GSC	.2	4	Chief of Staff
Air WC	15-25	—	Col	C&GSC	.5	7	Chief of Staff
AFSC	10-21	—	—	C&GSC	6.5	39	Chief, CMD
C&GSC							
Reg Crse	8-15	41	—	Br Adv	50.0	337	Chief, CMD
Asso Crse	15-19	49	—	Br Adv	5.0	30	Chief, CMD

The tabulation below shows graphically the conditions under which a Regular Army officer of the Combat Arms branches is eligible for consideration for career schools. It is essential that the individual officer recognize that eligibility alone does not assure attendance. The limited capacities of the colleges require that an officer must be better qualified than many of his contemporaries to warrant attendance. Waivers of eligibility criteria are rare and usually are granted only when outstanding officers have been unavailable for school because of overriding military necessity.

The inevitable question of an officer interested in further military schooling is, "What can I do to influence my selection?" The answer is as forthright as the query: "By performing all assigned duties with his utmost capability, and, whenever possible, by seeking new and greater responsibilities in command and staff assignments."

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NATIONAL GUARD SCHOOL TRAINING PROGRAM

AMERICA'S best-trained, most ready citizen-soldier component is extremely school conscious. The aim of National Guard training—as a first line component of the Armed Forces with an M-Day mission—is readiness.

In attaining the greatest degree of military proficiency possible under the limited training time available to a reserve component organization like the National Guard, great importance is attached to special training available through the active services school system.

The National Guard School program, to augment and reinforce training received at the armory and annual field encampment, is a dynamic program with only one goal—a more effective National Guard. It is predicated on the belief that success in modern warfare is impossible without trained leaders in administrative, technical and combat skills. Key personnel must be specially trained in their military and technical skills and all others must receive sufficient training to perform normal duties and functions.

It is axiomatic that the efficiency and effectiveness of a military organization is directly proportional to that of its key personnel and specialists. A well-trained, capable leadership means high morale all down the line. Significantly, National Guard morale today is at the highest level in its three hundred year history.

General training for members of all National Guard units is now being adequately provided through the agency of the "all component" training program. This program provides for training Guard units in the same subjects and in the same phases as active Army units, modified as necessary to meet Guard conditions.

For the supplemental training necessary to produce the effective key personnel and specialists without whom modern warfare is impossible, the National Guard depends on the following: Army service schools, Army area schools, State unit schools, extension courses and State officer candidate schools.

The National Guard, its leaders believe, did not have a sufficient number of school-trained men on mobilization day in World War II. The mission of the Guard school program today is to remedy this situation to the greatest degree possible before another emergency mobilization comes. How is this program shaping up?

During fiscal year 1954 a total of 14,975 National Guardsmen were taking courses at resident schools conducted by the Army. Of these, 8,309 attended schools conducted in Army areas to train specialists, such as cooks, mechanics, radio operators, etc., and 6,666 attended branch and technical service schools. Courses were from three days to ten months in length. In contrast, less than 8,500 Guardsmen attended Armed Forces schools during the entire 21-year period between World Wars I and II.

In addition to the resident courses, an average of 32,755 National Guardsmen were enrolled monthly in correspondence courses during the year. Included were 11,996 officers taking the extension courses of the 20 through 60 series, and 20,759 enlisted men enrolled in the 10-series courses.

Increasing school-consciousness of the National Guard is graphically illustrated by the progressively rising figures for National Guard attendance at Army branch and technical service schools during fiscal years 1952-1956. In weighing these figures, it must be remembered that Guardsmen attending Army area schools are not included. In fiscal year 1952, a total of 4,278 Army Guardsmen attended the service schools; in 1953 attendance rose to 6,143 and to 6,666 in 1954. Budgeted attendance for the current fiscal year, ending 30 June 1955, is 7,749 and the program for fiscal year 1956 calls for an attendance at service schools of 11,340.

Recognition by Government leaders of the value of the program to national defense is indicated even more dramatically by budget figures. Eight years ago the budget for the entire National Guard school program amounted to approximately $600,000. During the current fiscal year it had jumped to 10 million dollars—an increase of more than fifteen times.

Let's take a closer look at the training available to National Guardsmen under the school program. Through this comprehensive, specialized program National Guardsmen not only become more proficient in their military specialties, but often increase their civilian earning power and chances for advancement. For in many cases, the individual Guardsman specialist's military assignment parallels or supplements the work he does in his civilian vocation. The more he learns about his military job, the more valuable he becomes to his civilian employer. And by the same token, his daily, full-time civilian job actually helps him become a better-trained, more valuable military man. In this respect, the 48 weekly armory training periods, 15-day annual field encampment and supplemental school attendance do not really give the complete National Guard training picture.

In addition to on-the-job training within the unit and correspondence courses, three main types of Army schools are available to National Guardsmen: Army service schools, Army area schools, two-day Unit Schools operated by the various States. Several states also conduct their own officer candidate schools.

The service schools, located throughout the country, are designed to train an individual for efficient performance of an assigned position in a unit. They include combat arms schools, i.e., The Armored School, and technical and administrative schools, i.e., The Ordnance School and The Adjutant General's School, respectively.

The courses, some 200 lasting from a few weeks to more than 10 months, cover a wide variety of subjects. Scope of the instruction available is indicated by such representative courses as officer candidate, meteorology, photography, general engineering, drafting, helicopter mechanics, welding, personnel administration and management, telephone installation, automobile and tank mechanics, finance auditing, etc.

National Guardsmen attending service schools run the full gamut of instruction possibilities. For example, on the officer level, National Guard students are found taking regular and associate courses at the Command and General Staff College, Special Weapons Training courses at the same school or branch refresher courses. The two-week branch refreshers, for example, designed to bring company and field grade officers up to date in tactics, techniques and material of their appropriate branch and grade include the technical services, the combat arms and administrative branches.

Army area schools, conducted by Army commanders in their respective Army areas, concentrate on common military occupational specialties, such as cooks, bakers, mess stewards, clerks, typists, radio operators, etc.

Training in the resident service schools, conducted on a high professional level, is provided through discussion, demonstration and supervised practical application. For the duration of each course, National Guardsmen are considered on "active duty for training" with full pay and allowances in grade and necessary traveling expenses. National Guard commanders on all levels are periodically advised by means of "The Army School Catalog" as to courses available to Guardsmen at the various service schools. Periodic notifications of special courses available during the year are sent to the various State Adjutants General by the National Guard Bureau for dissemination to unit commanders. Unit commanders may anticipate requirements for training of key personnel for the next one, two or three years. Men selected or recommended for the training are advised well in advance to make necessary arrangements with civilian employers. In selecting personnel, the commander considers the individual's qualifications, his potential as an instructor and the probability of his continued service in the unit.

On the local level, unit schools are conducted for National Guardsmen by the various States. They are designed primarily for the training of battalion or higher level staffs and to train both officers and enlisted men as unit instructors. The various Army service schools cooperate by providing instructional material. The schools are usually held on two-day weekends and require a minimum twelve-hour period of instruction. Participating Guardsmen rate two days basic pay and allowance for each weekend instruction period.

Home study or extension courses —approximately 900 of them—are available to all Guardsmen. The fact that a monthly average of 32,755 officers and men were taking these courses attests the popularity of the program with National Guardsmen. Guardsmen participate in extension programs to qualify for promotion and to further proficiency in their respective arm or service. Many Guardsmen establish academic qualifications necessary for appointment as 2nd Lieutenants by means of these courses.

The production of qualified junior officers is a major concern of the National Guard. National Guard tradition is to draw its commissioned officer corps from within its own ranks —from its qualified noncommissioned officers.

The source of basic qualification of many National Guard junior officers must of necessity be through the extension course (10-series) method. However, more and more stress is being placed on officer candidate training through the active Army and on OC schools conducted by the State. All States are now authorized to organize such schools under standards which must meet Department of Army approval. Instruction, usually spread over weekends, is of excellent quality with high standards of admission and eligibility. Currently, five States operate such schools, with five OC schools each in New York and California, and one each in Connecticut, Massachusetts and South Carolina. Approximately 750 enlisted Guardsmen have been graduated from these schools to date.

To increase the flow of qualified junior officers to the National Guard, the Army now permits Guardsmen to take officer training in Army OC schools without obligation of active military service on graduation. The Guard candidates, processed for the training in the same manner as active Army personnel, train in their National Guard status and grade. When graduated they may return immediately to their National Guard unit as second lieutenants.

High points of the Guard's school program are the special concentrated 10-week summer officer candidate schools for Guardsmen initiated by the Army in 1953. This year, under an expanded program, two classes, with a quota of 150 candidates each, will be given at The Infantry School, Fort Benning, Georgia, and one class, with a quota of 120 at The Artillery School, Fort Sill, Oklahoma. Last summer a total of 152 National Guardsmen were graduated from the two schools.

General Erickson in commenting on the high calibre of these men said: "Guardsmen attending these schools conducted themselves in the spirit and tradition of the National Guard and their scholastic and military accomplishments compared favorably with the active Army students at these schools."

Today the National Guard operates and trains for service under the following precept: "High standards should be applied by every echelon of command to all phases of National Guard operations—enlistments, appointments, promotions, training, individual and unit performance and administration."

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# The Organization of the CHINESE Communist Army

by LIEUTENANT BENSON LEE GRAYSON

EVERY year, since 1928, has seen the Chinese Communists engaged in war, at first for survival, and more recently for conquest. In the course of the ensuing twenty-six years, Communist forces conducted guerrilla operations against Chiang Kai-shek's Nationalist Government, and then, in 1937, they joined with the Nationalists in a short-lived alliance against the Japanese. Following the Japanese surrender, the Chinese civil war was resumed in 1946, and after four years of hostilities, the victorious Communists forced the Nationalists to evacuate the Chinese mainland and seek refuge on Formosa.

The prestige of the Chinese Communist Army reached an all-time high when, in 1950, China intervened in the Korean War and forced the United States to settle for an inconclusive and unsatisfactory peace. In view of the continued military operations conducted by the Chinese Communists, it was natural for the Chinese Army to develop into the most important instrument for the conduct of national policy. Any estimate of the intentions and capabilities of Communist China, therefore, must include a study of the organization of the Chinese Communist Army.

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The present strength of the Chinese Communist Army ("People's Liberation Army") is approximately five million men, organized into 140 divisions of 11,000 men each. Not all units are of the same quality, and the Communist High Command has divided the army into three components. The elite striking force of the Chinese Army is formed of 70 divisions of veterans of the civil war. These troops, numbering 2,300,000, are thoroughly indoctrinated with Communist principles and are regarded as the bulwark of Communist rule in China. They are equipped with modern arms, and at present, are organized into five field armies.

The second component of the Chinese Army is formed of troops assigned to the six military district armies, numbering some 2 million men. Following the close of the civil war, China was divided into six vast military-administrative districts. Five of the districts: Northwest China, South Central China, Southwest China, East China and Northeast China, were placed under the control of generals who also commanded a field army and district troops assigned to the military district. The district troops are not of the same high quality as the elite troops of the field armies, and they have been supplied with inferior arms and equipment. Many of the district troops fought on the Nationalist side in the civil war, and after their surrender they joined, or were impressed into the Communist Army.

The sixth administrative district, consisting of Manchuria, was placed under the control of a civilian—Kao Kang, and very few Chinese troops were stationed there. The reason for the exemption of Manchuria from military control is not definitely known. It is possible that civilian administration was established in Manchuria because the region had been conquered by the Chinese Communists early in the civil war, and by 1950, the loyalty of the population was assured. There is also some evidence that the Soviet Union objected to the stationing of Chinese troops in Manchuria, which borders on Russian territory. It is interesting to note that Kao Kang was purged in 1953, a sign of possible dissension in the Government of Communist China.

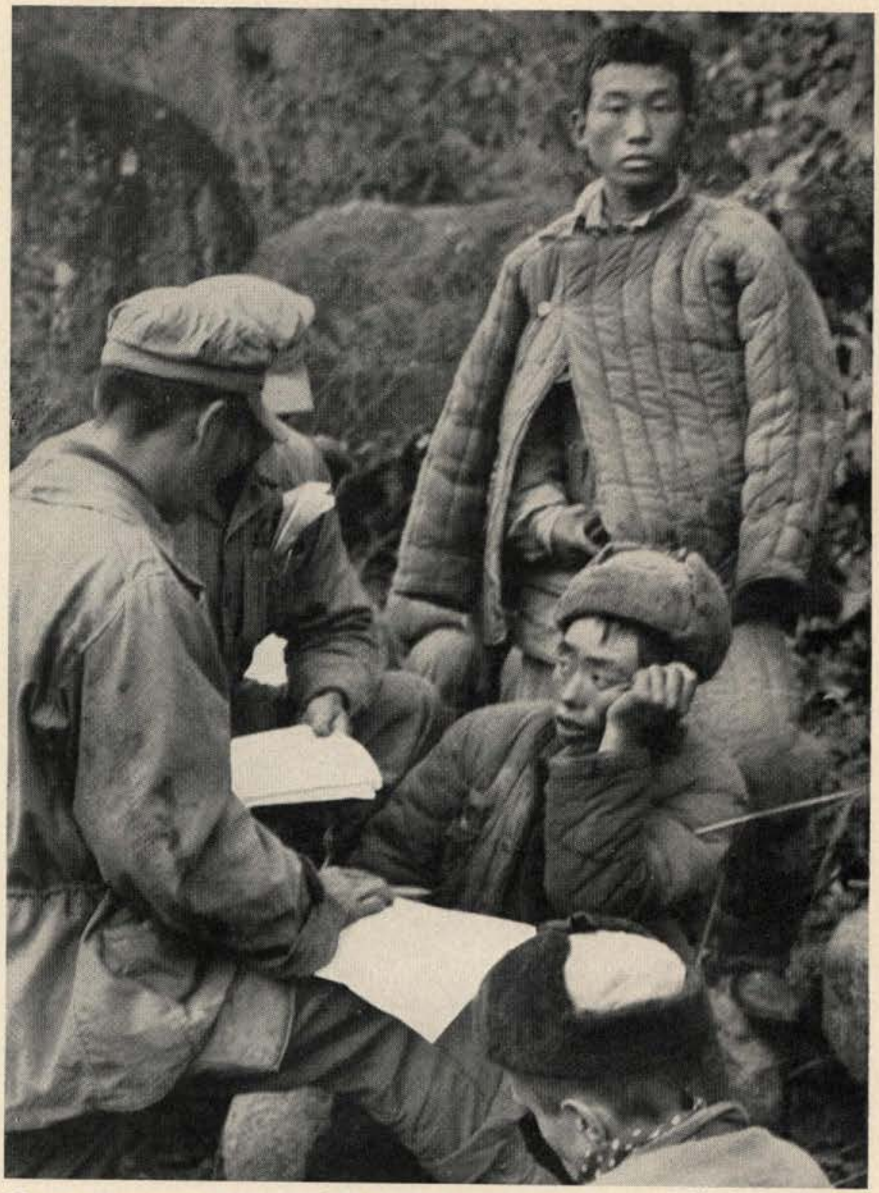
The third component of the Chinese Army is composed of the People's Security Force. Numbering several hundred thousand men, they form the political police, similar to the Soviet MVD. The function of the People's Security Force is to prevent espionage and sabotage; under the Communist interpretation these crimes include all opposition to the Communist dictatorship. In the Soviet Union, the political police are under the control of the civilian Minister of the Interior. In Communist China, the People's Security Force is under the administration of the army, an indication of the power of the Chinese Communist military leaders.

In addition to the three regular components of the Chinese Communist Army, is the reserve force of over twelve million People's Militia, similar in organization and function to the American National Guard. The militia are called for three months of active duty training, and then returned to civilian life. They attend meetings in their spare time and are obliged to assist the police in maintaining order in the event of serious disturbances.

Nominally, all able-bodied men are expected to volunteer for service with the People's Militia, and any refusal to do so would be considered as counter-revolutionary activity, punishable by imprisonment in a labor camp or worse. In practice, the size of the militia in a district is determined by the local authorities. General Chen Yi, who commanded the East China District, distrusted the loyalty and efficiency of the militia, with the result that his district had only a paper organization with very few men enrolled in the militia.

In their writings, the Chinese Communist military leaders have devoted much attention to the role of the militia in a future war. General Chu Teh, the Commander of the Chinese Communist Army, stressed the importance of the militia in defeating a foreign invasion of China. At the present time, however, the militia are poorly armed, in some cases only with swords. Their effectiveness against the Nationalist guerrillas is reported to be very low. In resisting a foreign invasion, they would be almost useless. The low quality of the arms supplied the militia results both from a general shortage of modern equipment, and from a distrust of their loyalty to the Communist Government.

It is sometimes assumed that the development of the Chinese Communist Army has followed the pattern established by the Soviet Army, and that the two principal Communist military establishments are, or soon will be identical. The circumstances surrounding the organization of the two armies, however, differed greatly in many respects, resulting in marked differences between them which have continued unaltered to the present time. These differences are becoming increasingly important, not only for their effect upon purely military situations, but additionally because of the influence the military has assumed in the various domestic matters of these two Communist States.


U. S. Marine Corps

Chinese Communist Prisoners taken during the latter days in Northeast Korea.

When the Communists seized control of the Russian Government in November, 1917, the bulk of the soldiers and the overwhelming majority of the officers refused to serve in the new "Red Army." The Communist leaders were forced to reconstitute the army from whatever military talent was available. Men like Zhukov, Budenny and Voroshilov, former enlisted men in the Tsarist Army, were given high positions because of their proven loyalty to the Communist Government. The leaders of the Soviet Army, although they won much prestige in the Russian civil war, had received their appointments from the established Communist Government and were completely subservient to the civilian authorities. The purge of almost the entire Army High Command in 1937, which was accomplished without any resistance from the armed forces, showed the subordinate position of the Soviet Army. It was only with the death of Joseph Stalin in 1953, and the arrest of Lavrenti Beria, the head of the powerful MVD, in July, 1954, that indications of the increasing role of the Soviet Army in the determination of national policy began to appear.

In contrast to the Soviet military establishment, the Chinese Communist Army has always been in a position of great power. It is necessary to briefly review Chinese history in order to understand the reasons for this development. The overthrow of the Chinese Imperial Government in 1911 was followed by a period of anarchy and confusion. In 1917, Dr. Sun Yat-sen, leader of the Kuomintang, established a goverment in Canton and extended his control over South China. The Kuomintang (National People's Party) at the time consisted of individuals favoring the modernization of China and the establishment of a national government. As soon as possible, a democratic constitution was to be put into practice, and the Government was to be mildly socialistic.

Unable to obtain assistance from the Western Democracies, Sun Yat-sen turned to the Soviet Union for support. Soviet military experts supervised the organization of the Chinese Nationalist Army, and Chiang Kai-shek and other young officers studied at Soviet military academies. During this period of close cooperation between the Kuomintang and the Soviet Union, the Chinese Communists were instructed to join the Kuomintang. At the same time, many of the leaders of the Kuomintang joined the Chinese Communist Party.

Following the death of Dr. Sun Yat-sen in 1925, Chiang Kai-shek became leader of the Kuomintang assuming, in addition, the post of commander in chief of the Nationalist Army. Chiang continued the policy of cooperation with the Soviet Union for two years, during which time he extended the control of the Nationalist Government throughout most of China. Chiang gradually became aware that the Communist members of the Kuomintang were attempting to turn the organization into a tool of the Soviet Union. Without any warning, Chiang suddenly turned upon the Communists in March of 1927. Thousands of Communists were executed, and the Soviet military advisers were expelled.

Many of the senior officers of the Nationalist Army, however, were secretly members of the Chinese Communist Party. On August 1, 1927, elements of the 4th, 11th and 20th Nationalist armies, stationed at Nanchang, rebelled against Chiang Kai-shek and proclaimed in favor of the Communists. The Nanchang uprising is regarded as the establishment of the Chinese Communist Army. Although the Nanchang revolt was quickly suppressed and the Communist troops forced to flee to the interior, this incident is important in the later development of the Communist Army.

Unlike the individuals given command of the Soviet Army in 1918, who had held minor positions in the preceding regime, the leaders of the Nanchang uprising were officers occupying important posts in the Nationalist Army. General Chu Teh, who commanded the military operations of the rebels, had already commanded a division of Nationalist troops, and at the time of the uprising he held the post of chief of the Nanchang Bureau of Public Safety and Commandant of the Nanchang Branch of the Whampao Military Academy. Liu Po-cheng, chief of staff to the Nanchang Revolutionary Committee, had been engaged in carrying out delicate political negotiations with some war lords for the Kuomintang. Lin Piao, one of Chu Teh's chief assistants, had commanded a battalion in the Nationalist 4th Army.

Shortly after the Nanchang uprising, many other senior Nationalist officers deserted to the Communists. General Ho Lung left his position of commanding general of a division of Szechwan troops, and persuaded many of his soldiers to accompany him. Nieh Yung-chen, one of the few Nationalist officers who had attended a Soviet Military Academy (this training was reserved for only the most promising young officers), deserted his post as instructor at the Whampao Military Academy.

The former Nationalist officers, who became the leaders of the Chinese Communist Army at its inception, have continued to dominate the army throughout its growth and development. General Chu Teh commanded the Chinese Communist Army during the civil war, and is still commander in chief at the present time. General Liu Po-cheng headed the Second Field Army which conquered Southwest China from the Nationalists, and currently is chief of the training department of the army general staff. Lin Piao commanded the Chinese "Volunteers" who intervened in Korea.

The fact that the initial Communist resistance to Chiang Kai-shek was carried out under military auspices, contributed to the prestige of the Chinese Communist Army. Moreover, when the Nanchang uprising occurred, there was as yet no Chinese Communist Government in being. Thus, the formation of the Communist Army antedated the establishment of a Communist Government. In comparison to the Soviet Union, which in 1918 was a state without an army, the Chinese Communists in 1927 were an army without a state. It is, therefore, not surprising that the Chinese Communist military leaders have continued to maintain a dominant position in the Chinese Government, in contrast to the subservient condition of the Soviet military establishment.

The importance of the military arm to the Chinese Communists was demonstrated in their struggle for survival. Following the failure of the armed uprisings against Chiang Kai-shek in 1927, the Communists fled the Nationalist repression. Mao Tse-tung, who had been one of the founders of the Chinese Communist Party in 1921, established a base in the town of Chingkanshan, located in the South China province of Kiangsi. The location of the new Communist headquarters was well chosen, the area was surrounded by high mountains which seriously impeded the Nationalists' pursuit. Kiangsi also borders the rich, rice-growing province of Hunan, from which food supplies could be obtained.

Chu Teh soon arrived at Chingkanshan, followed by other fugitives. A Chinese Soviet Government was organized, and after some years of conflict between various factions of the Communist Party, Mao Tse-tung won full control of the Party and assumed the position of Chairman of the Council of People's Commissars in 1931. During this period, Chu Teh and the other former Nationalist officers were reorganizing the Chinese Communist Army.

Many of the future successes of the Communist armies can be traced to this reorganization. The former Nationalist troops had been from the best units in Chiang Kai-shek's army. They were reinforced by the incorporation, often compulsory, of Kiangsi peasants into the Communist Army. Constant training turned the troops into excellent soldiers. At the same time, ruthless political indoctrination ensured the reliability of the conscripts. Lenin clubs were established in every company, as the center of social and cultural activities. Political Commissars examined every action for the slightest sign of disloyalty.

The efficiency of the Communist Army was soon put to the test, with the survival of the Chinese Communists dependent on the outcome. In 1934, Chiang Kai-shek renewed his attacks against the Communist stronghold in Kiangsi, and by autumn the Communist position was desperate. The leaders of the Chinese Soviet Government determined to break through the Nationalist lines and establish their new base in Shensi province in West China, 5000 miles from Kiangsi. This fighting retreat (the "Long March") lasted two years, and resulted in the decimation of the Communist Army.

The Chinese Communists were saved from destruction by the outbreak of the war with Japan. Chiang Kai-shek was forced to divert his attention to resisting the Japanese invasion, and he concluded a temporary alliance with the Chinese Communists. The Chinese Communist Army was nominally incorporated into the Nationalists' forces as the Eighth Route Army, and the Communists promised to abolish their independent Soviet Government in Shensi. Actually, the Communists retained complete control of the areas they occupied, and the Nationalists and the Communists fought each other as frequently as they did the Japanese.

The half-hearted cooperation between the Nationalists and Communists was completely dissolved following the Japanese surrender in 1945. In spite of American efforts at mediation, the civil war was resumed, with the Chinese Communists receiving some assistance from the Soviet Union. Initial Nationalist victories were followed by terrible reverses, and in December, 1949, the Nationalist Government was evacuated to Formosa.

After four years of civil war, Communist rule was established throughout China. Yet it had been the victories of the Chinese Communist Army which were responsible for the formation of the People's Republic Government of China in Peiping. The power of the army, combined with the fact that the ablest officials of the Communist Government were the leaders of the army, resulted in the appointment of military officials to the command of five of the six military-administrative districts in China.

The Chinese Communist Government stated that this was only a temporary expedient, necessitated by the chaotic conditions which followed the civil war. This has proved to be true, civilian control of the five military-administrative districts was reestablished in the summer of 1954. Nevertheless, the leaders of the Chinese Army have retained positions of power in the Communist Government. In some respects, the Chinese Communist Government resembles a military dictatorship. A *Communist* military dictatorship, but a military dictatorship none the less.

One of the revisions of the Chinese Government, carried out in September, 1954, established a National Defense Council as the supreme military authority of the Chinese State. The National Defense Council is headed by Mao Tse-tung, the chairman, and is composed of fifteen deputy chairmen and eighty-one members. Among the deputy chairmen are Chu Teh, the commander in chief of the Chinese Army, General Peng Teh-hui, the Minister of Defense, and General Lin Piao. Although the membership is overwhelmingly composed of army officers, the Chinese Navy and Air Force are also subordinate to the National Defense Council.

The existence of the National Defense Council does not automatically demonstrate military domination of the Chinese Government. Many countries organize such a body to control military operations. In Communist China, however, many of the officers on the National Defense Council also hold important civilian positions in the government. Chu Teh is vice chairman of the Central People's Government, the second most important post in the Chinese Government (Mao Tse-tung, the chairman, is regarded as the most important official). Four of the deputy chairmen of the National Defense Council: Generals Peng Teh-hui, Lin Piao, Ho Lung and Chen Yi are also deputy premiers of the Communist Government. Obviously, this interlocking of civil and military functions permits the leaders of the Chinese Army to influence the policies of the Communist Government.

It is difficult to predict what course of action the military leaders of Communist China, and thus the Chinese Government, will pursue in the near future. Nevertheless, certain trends are discernible at the present time. The leaders of the Chinese Army are not Marxist theoreticians, but expert generals. The establishment of Communist control of China was achieved through the use of armed force. Further recourse to armed force won Communist victories in North Korea and Northern Indo-China. Because of their continued success, the Chinese Communist military commanders will continue to urge the use of armed force to pursue national policy. Therefore, if the assumption that the present Communist Government of China is dominated by military officials is correct, the danger of future Chinese Communist aggression is very great.

The military strength of Communist China, moreover, is very impressive. The elite troops of the five field armies, some 2,300,000 men, are among the best soldiers in Asia. Because of their high quality and complete loyalty to the Communist Government, they could be committed to action in any part of Southwest Asia with good chance of success. Although the secondary units assigned to the military district armies are of lesser quality, they are being improved. Constant political indoctrination, reinforced by the terroristic methods of the People's Security Force, will gradually eliminate all opposition to Communist rule.

One conclusion is evident from a study of the organization and development of the Chinese Communist Army. The army is strong now. In time, it will become stronger. Any Chinese Communist Government in Peiping would be detrimental to the interests of the United States in the Far East. A Chinese Communist Government under the domination of military leaders, would be even more likely to embark upon a policy of armed aggression. Only continued American vigilance and constant strength will protect the future of the United States.

NEWS NOTES

3rd Armored Division Reorganized as Tactical Division

Reorganization of the 3rd Armored Division at Fort Knox, Kentucky, from a training to a tactical division will start in March, the Department of the Army announced recently.

Conversion of the division will give the Army a total of four tactical armored divisions. The others are the 1st and 4th Armored Divisions at Fort Hood, Texas, and the 2nd Armored Division stationed in Germany.

Concurrently with the reorganization of the 3rd Armored Division the Army will establish the Armored Replacement Training Center at Fort Knox. The Training Center, which will be a relatively small activity, will conduct advanced individual training for Armored replacements. It also will give Armored specialist training.

The new tactical division will train its cadre until June 30. After that date, it will receive additional personnel in monthly increments through September to bring it to full strength.

The 3rd Armored Division, nicknamed "Spearhead," was first activated in April, 1941. Landing in Normandy, France, shortly after D-Day in June, 1944, it helped to exploit the St. Lo breakthrough, took part in the heavy fighting which resulted in the closing of the Falaise Gap, and breached the Siegfried Line in September, 1944. After it participated in the Battle of the Bulge, the division captured Cologne, Germany, and assisted in mopping up the Ruhr pocket.

The division was inactivated in Europe in November 1945. It was reactivated as a training division at Fort Knox July 15, 1947.

Headquarters, Continental Army Command

The Office, Chief of Army Field Forces at Fort Monroe, Virginia, was redesignated Headquarters, Continental Army Command (CONARC) on the 1st of February.

General John E. Dahlquist, who has been the Chief of Army Field Forces, is the Commanding General of the new command.

The new field command will direct training and other military operations of the six Continental United States Armies and the Military District of Washington. The Continental Armies include: First Army, Governors Island, N. Y.; Second Army, Fort George G. Meade, Md.; Third Army, Fort McPherson, Georgia; Fourth Army, Fort Sam Houston, Texas; Fifth Army, Chicago, Illinois; and Sixth Army Presidio of San Francisco, California.

Among the functions of the new command will be the general supervision and direction of all matters concerned with the training of individuals and units utilized by a field Army. Training responsibilities of the Commanding

TOP COMMAND CHANGES

General Maxwell D. Taylor
Far East Commander

Lt. Gen. Lyman L. Lemnitzer
Eighth Army Commander

Maj. Gen. James M. Gavin
DC/S (Plans and Research)

General, Continental Army Command will also include the ground defenses of the United States. The Commanding General will exercise general supervision over certain financial, accounting, and management programs of all stateside army units and installations under the new setup.

The Continental Army Command is being established to provide for more economical and effective direction of the Continental Armies. The new organization will limit the number of commanders reporting directly to General Matthew B. Ridgway, Army Chief of Staff. Emphasis in the new command will be on training and tactical operations. Administrative responsibilities will be few.

Under the new command, no change will be made in some of the old Army Field Forces responsibilities. The new command will take over the responsibility for the combat, service and technical training of individuals and units, including the Army Antiaircraft Command, which make up the Army in the field; the development of tables of organization and equipment for units normally a part of the Army in the field; and the continued development of new weapons, matériel, and equipment.

General Dahlquist was appointed Chief of Army Field Forces in August 1953. He attended the University of Minnesota and was commissioned a second lieutenant in the Infantry Reserve in August 1917 after completing Officer Training at Fort Snelling, Minnesota. He later received his Regular Army appointment in October of the same year.

During World War II General Dahlquist commanded the 36th Infantry Division in its combat operations in Southern France and in Germany from July 1944 until the war's end. After a tour of duty at the Pentagon, as the Deputy Director of Personnel and Administration for the War Department, he assumed command of the 1st Infantry Division in Germany. He was named commander of the V Corps in Germany in August of 1951.

He was Commanding General of the Fourth Army at Fort Sam Houston, Texas, in March 1953, just prior to taking over as Chief, Army Field Forces at Fort Monroe, Virginia.

Major General Armistead Davis Mead, Major General William E. Waters and Major General Leander L. Doan were scheduled to take over the CONARC Infantry, Artillery and Armor Sections, respectively, when they arrived at Fort Monroe during February.

Special Staff Sections of Infantry, Artillery and Armor, each headed by a general officer, were established as a major change in the staff organization of CONARC recently. Primary purpose of the change is to produce the best trained and best equipped combat soldiers within each arm and thereby enhance the prestige of the fighting man.

TO RETIREMENT

General John E. Hull

General William M. Hoge

The Chief of each combat arms section is responsible for advising the Chief of CONARC on all matters pertaining to their respective branches; determining the state of readiness of individuals and units; determining doctrine, tactics, and techniques and organization; requirements for product improvement of matériel; and reviewing in coordination with other Continental Command staff sections, all matters pertaining to infantry, artillery and armor.

One of the principal responsibilities of CONARC is the training and operational readiness of all combat units in the United States. The presence of a senior combat arms representative with a small staff for each arm, ensures adequate representation and facilitates the exercise of this responsibility. Heretofore, general staff sections, together with the Combat Arms Advisory Group, coordinated the functions of all combat arms.

The Combat Arms Advisory Group and the infantry, artillery and armor branches of the G-3 (Training) Section, were abolished at Army Field Forces to create a nucleus for the new staff sections. No increase in personnel was involved.

While personnel requirements and actions remain functions of the Department of the Army it is expected that the combat arms section Chiefs will exercise some influence on assignments, particularly in key positions.

M47's to 40th Armored Division

Forty-four of the Army's M47 General Patton tanks have been allocated to Southern California's 40th (Grizzly) Armored Division and are currently

EUROPEAN COMMAND CHANGES

General Anthony C. McAuliffe
C-in-C U.S. Army Europe

Lt. Gen. Henry I. Hodes
Commander Seventh Army

being readied for issue to the National Guard unit's four tank battalions, it was announced recently by Maj. Gen. Homer O. Eaton, division commander.

The 40th, largest military organization in the Southland, will also qualify as the most potent striking force in this area with receipt of the 44 tanks, the general stated.

The M47 carries a crew of five men and is capable of top speeds up to 45 miles per hour. It utilizes an 800-horsepower air-cooled engine especially designed for the purpose by U.S. ordnance specialists. Easier handling has been achieved through development of an automatic transmission similar to that found on most late-model automobiles.

General Eaton said this will be the largest shipment of tanks received by the division since its conversion to an armored role last July.

The largest previous allocation, ten M41 (light) tanks, was received last December, said the general.

The big armored vehicles are currently undergoing final maintenance checks at a central California depot prior to issuance to division units, Eaton disclosed. After they have been assigned to individual tank units within the 40th, he went on, the tanks will be stored at armories throughout the Southland where they will be used to train tankers of the division during regular weekly training sessions.

Actual field training in tank operations will be given this summer during the 40th's two-week annual encampment (at Camp Roberts).

The 40th, currently raising its manpower strength from approximately 5,300 men and officers toward a goal of 7,500 by mid-summer, is made up of 113 company-sized units and maintains armories in 50 Southland communities.

9,000 Military to Participate in Spring Atomic Tests

The Department of Defense announced recently that approximately 9,000 officers and men of the Army, Navy, Marine Corps and Air Force will participate in Operation TEAPOT, a series of atomic tests, announced September 25, 1954, by the Atomic Energy Commission, to be held this spring at the Nevada Test Site.

A spokesman for the Department of Defense pointed out that much progress has been made in the development of military organizations, procedures and tactics for nuclear warfare. These organizations, procedures and tactics must, however, be continually subjected to tests conducted under the most realistic condition to insure that they are compatible with our ever progressing technical knowledge. The Department of Defense, therefore through the Armed Forces Special Weapons Project, will conduct a series of technical and scientific experiments designed to evaluate the effects of new and improved nuclear weapons and to ascertain factual information required for the maintenance of up-to-date plans vital to the security and defense of our nation. The Department of Defense emphasized that only by conducting a series of well-coordinated controlled tests can the military services accomplish their serious responsibility for the defense of this nation by insuring that their plans are based on proven facts rather than theoretical concepts.

Field Command, Armed Forces Special Weapons Project, located at Sandia Base, Albuquerque, New Mexico, will provide the technical direction for this series of experiments assisted by the service laboratories and contractors to the Department of Defense, and in addition, will coordinate all phases of military participation in the test. As in previous test series, advantage will again be taken of the opportunity to continue to indoctrinate personnel of the Armed Services in the effects of one of the weapons of the nation's arsenal, the nuclear weapon.

The Army will conduct Exercise DESERT ROCK VI as an integral part of Operation TEAPOT. A total of 4,300 men and officers, including an armored task force, will participate in a series of training and indoctrination tests. The Exercise is designed to test equipment and to develop tactical concepts and techniques relating to atomic warfare and to acclimate personnel to the environment of the atomic battlefield. The Army has designated Lt. General Willard G. Wyman, USA, as Exercise Director and Brig. General Fred V. Sladen, USA, as Deputy Exercise Director.

Command headquarters for DESERT ROCK VI will be located at Camp Desert Rock, Nevada. Housing and other support facilities for participating troops of all services will be provided by the Army at Camp Desert Rock.

An atomic explosion against hypothetical enemy forces is included in the Marines' coordinated air-ground exercise at the test site.

In addition to participating troops and support units, each service will set up a program for individual military observers from various stations in the United States.

Under simulated atomic combat conditions military personnel will receive training in essential physical protection measures and in assault tactics relating to atomic warfare as well as indoctrination training in the effects of atomic explosions on military equipment. Troop indoctrination will be conducted by military specialists in the field of atomic energy. Safety experts in radiology will accompany the troops into the maneuver areas.

CHANGE OF ARMOR COMMAND

Maj. Gen. L. L. Doan
Armor Section, CONARC

Maj. Gen. Clark L. Ruffner
2d Armored Division

Army Plans Refresher Courses for Reserve Component Officers

A number of two-week branch refresher courses for National Guard and Reserve officers will be conducted at Army service schools, the Department of the Army announced recently.

Designed to bring officers up to date in tactics, techniques and matériel of their appropriate branch and grade, the special training is open to company and field grade officers who have not attended a general course in their particular branch during the 30-month period preceding the date they would report for the refresher course.

Branches to be covered in the courses include the Chemical Corps, Corps of Engineers, Artillery, Infantry, Medical Service, Ordnance Corps, Quartermaster Corps, Adjutant General's Corps, Finance Corps, Armor, Military Police Corps, and Transportation Corps.

The importance of these courses has

been emphasized by the Department of the Army. Eligible Guard and Reserve officers have been urged to submit applications early. Guard officers will submit requests through their organization commanders to their State Adjutant General. Army Reserve officers will submit their applications to the military districts in which they are located.

5th Armored Division Association to Hold 9th Annual Reunion

The 5th Armored Division (Victory Division) Association will hold its 9th Annual Reunion in St. Louis, Missouri during the 4th, 5th and 6th of August this coming summer. For further information please contact Mr. Robert Fehrmann, 1107 Addison Drive, St. Louis County 15, Missouri.

10th Armored Division Association to hold 4th Annual Reunion

The 10th Armored Division (Tiger Division) Association will hold its 4th Annual Reunion in Detroit, Michigan during Labor Day Weekend, September 3, 4, and 5, at the Hotel Statler. For further information please contact Mr. Jack Margulies, 81-36 255th St., Floral Park, New York. The New York Chapter of the 10th Armored Association meets the second Wednesday of each month at the Collingwood Hotel, 45 West 35th St., N. Y. C. All former Tigers are extended an invitation to attend.

Patton 48's to be Used in Spring Atomic Tests

For the first time in history, American soldiers will depend on armor for protection from an atomic detonation this spring.

Fifty-five Patton 48 tanks, their crews poised for a counter-attack against a simulated enemy, will be in position forward of the trenches at H-hour during one of the "shots" at the Atomic Energy Commission's Nevada test site.

The tanks will lead a fully equipped tactical armored task force—including 30 armored personnel carriers—in a maneuver planned as the climax of the Army's Exercise Desert Rock VI. The exercise is designed to give more than 5,000 soldiers a first-hand appreciation of the effects of nuclear weapons.

The task force—led by Lieutenant Colonel John Ray Wheelock III—will consist of a tank battalion reinforced by armored infantry, field artillery and engineer units. Its 266 vehicles will be manned by 800 soldiers.

Behind the Patton 48 tanks in the assault will be 30 armored personnel carriers, each bearing an infantry squad of nine men, and six self-propelled howitzers.

Supporting vehicles will include 51 two and a half ton trucks, six three-quarter ton trucks, 41 jeeps, five tank recovery vehicles, two five-ton wreckers, 33 ton and a half trailers, eight quarter-ton and one three-quarter ton trailers, four water trailers, two 10-ton tractors, and two 20-ton tractors.

The task force, made up of units from Camp Irwin, Calif., and Fort Hood, Texas, is training at Camp Irwin for the unique maneuver. A week prior to D-day it will move 170 miles overland through Death Valley and rendezvous near the blast area. The armored operation is being planned and directed by Brigadier General Charles A. Sheldon, commanding general of Camp Irwin.

The task force's battle scenario assumes that an aggressor has broken through American lines and is fired upon by friendly atomic artillery.

Immediately after the blast, the force will counter-attack to regain the "lost" ground, taking maximum advantage of the shock and casualties inflicted on the enemy. It also will determine how close to ground zero—actual point of detonation—it can maneuver.

While the task force maneuvers offensively, 200 other soldiers will conduct a defensive exercise in the segment of the blast area set aside for Army operations.

These troops will set up close to ground zero a standard communications system organic to present infantry regiments. After the blast they will determine how much additional equipment, how many men and how much time are required to re-establish the entire communications network.

While other Army units are training for possible atomic warfare, Exercise Desert Rock VI marks the first time that soldiers have depended on their combat vehicles for protection against an atomic blast.

General Willems to Command 3d Armored Division

Major General John M. Willems, Deputy G2, Department of the Army, has assumed command of the 3d Armored Division at Fort Knox which recently was reorganized as a tactical division. This Department of the Army press release, received as we close *ARMOR* for press ourselves, concurrently re-assigns Major General Gordon B. Rodgers to duty in Washington with the Department of the Army. His new assignment has not yet been announced.

At the same time it was announced that Brigadier General Samuel L. Myers has assumed command of the Armored Replacement Training Center. Gen. Myers has been the assistant division commander of the 3d Armored. The Center has assumed the training mission of the 3d Armored Division. The Center will continue the basic training of recruits who have not completed training with the division. However, when this cycle is completed the mission of the center will be solely to train packet platoons (this training is discussed in this issue, see page 23) and specialist courses.

The over-all manipulation should result in an increased strength personnel of Fort Knox by 5000.

Major General John K. Herr, United States Army, Retired, died at Walter Reed Hospital on 12 March 1955 at the age of 76. He was interred at Arlington Cemetery. General Herr graduated from West Point in 1902. As a cadet he achieved international and national fame as a rider and a baseball player. Commissioned in the Cavalry he was first assigned as a Second Lieutenant to the 7th Cavalry Regiment. During World War I, as the Chief of Staff of the 30th Infantry Division he was awarded the Distinguished Service Medal. Subsequent to the war he served with the Occupation forces in Germany. Returning stateside he was assigned to the War Department General Staff. In 1924-26-27 he attended the service schools at Fort Riley, Fort Leavenworth and the Army War College, and at the latter he was assigned as instructor and director from 1928-32. From 1933-35 he was assigned to the Inspector General Department at Governor's Island. In 1935 he returned to command his old regiment, the 7th Cavalry. In 1938 he was appointed Chief of Cavalry, retiring in 1942 after a four-year detail, at the age of 64. He was the last Chief of Cavalry as this office was abolished in 1942. Long an exponent of horse cavalry, he maintained that armored cavalry and horse cavalry were supplementary to each other and neither one should be excluded. General Herr was President of the Cavalry Association during the period 1939-45.

FROM THESE PAGES

65 Years Ago

During the prevalence of peace throughout the world, although all nations are prepared for war, many theories are advanced by military writers and strategists as to what may happen, and as to what should be done to complete and strengthen armies for field service. Some generals who have been prominent and successful in the field, but not so in the cabinet, do not believe that past actions can be made to form models for battles to come; and, if history teaches us anything, it is that theorists are not the men who do the fighting, and that when they undertake it they generally fail. A general, wedded to a theory which a little common sense may upset, is completely lost when things do not turn out as he had planned.

The talents necessary for success are treated by Baron Von Der Goltz in connection with the principles of theory and practice, intelligence and will-power. He says: "How intelligence, which in time of peace enjoys the greatest consideration, decreases in value in time of war when opposed to will, is seen in the result of almost every Council of War.

"Highly intellectual natures readily adopt a universal theory, which is prejudicial to success within the narrow sphere of actual service.

"In time of peace, when the will and courage are subjected to the responsibility of fewer trials than in time of war, the worth of an officer is, as a rule, exclusively determined by his intelligence, whilst this last guarantees success in war to a far less degree. Hence the frequent disappointment in the persons of generals who have in peace time been prematurely promised a great future, and upon whom sure hopes have been unwarrantably based."

American Practice and Foreign Theory

E. V. SUMNER
Lt. Col., Eighth Cavalry

50 Years Ago

With interests in every clime, and responsibilities as widely scattered as our regimental standards, we must recognize that increased importance creates jealousies, extended frontiers bring probabilities of friction, and be ready if necessary, to fight for peace.

As early as the time of Frederick some held that with the invention of firearms cavalry had lost its importance in battle. At the outbreak of our Civil War the same idea was prevalent, but both sides steadily increased their horsemen, until in 1865 the Northern guidons fluttered over eighty thousand cavalry. The cavalry emerged from that conflict with credit, and with its work in Indian wars, its part in the Santiago campaign and the Philippine insurrection, still holds its place in public esteem. But cavalry is expensive, and few would advocate the false economy which provides something cheap and regrets it in the end. The best brains in Continental armies have studied the problem of having an effective cavalry ready to take the field in war without the burden of maintaining it during peace, and their failure indicates the impossibility of solution. With some still contending that the cavalry day in battle has passed, and facing certain expense if we maintain it, we should glance at what cavalry has done in modern war, and inquire what it can still do, and whether we have need of cavalry.

Cavalry in Modern War

JAMES G. HARBORD
Captain, Eleventh Cavalry

25 Years Ago

Regardless of the progress made in the development of fighting machines, Cavalry will always be necessary. It will hold its own because no other agency can perform Cavalry duties with equal reliability and dispatch. It can operate effectively in woods and mountains where machines cannot go; it can even swim streams that would stop machines; and whether its supply trains come through or not, it can carry on day and night under any conditions of roads or weather. To expect mechanical vehicles—impotent without regular supplies, blind and deaf to control, and restricted by terrain—to take over these duties, is to expect the impossible. Each arm has its limitations and its proper sphere of usefulness.

Instead of rivalry, there should be union to insure strength. The Infantry has its heavily armored tanks to lead the assault; the Cavalry should have fast cross-country machines for extended rapid maneuver in operations against the enemy's front, flanks, and rear. The union of Cavalry and mechanized units equipped for rapid maneuver would be natural, for they have much in common. Both are highly mobile; their tactics are similar; their actions develop and culminate rapidly; and their commanders, to be successful, must possess like traits. Each supplies in generous measure what the other lacks. We have dwelt upon the limitations of fighting machines in order to counteract the present tendency to over-rate their powers; but to deny that they are valuable weapons would be absurd. On suitable terrain, armored fighting machines are indeed formidable. The obvious thing for the Cavalryman to do is to accept the fighting machine as a partner, and thus prepare to meet more fully the demands of future warfare.

Mechanization and Cavalry

MAJOR G. S. PATTON, JR., Cavalry
and
MAJOR C. C. BENSON, Cavalry

10 Years Ago

Soviet experience in this war conclusively shows that in combined operations of mobile arms the most dangerous factor—and one that can blight the whole operation—is that of routine thinking. A thorough and balanced appreciation of the situation must be the basis of a creative and imaginative effort directed toward finding new ways and means of fighting. Constant striving for surprise and unflagging determination are the prerequisites for victory.

The first and basic factor of successful coordination of cavalry and tanks is the principle of using them in massed formations and throwing them into the flank and rear of the main enemy grouping. The second guiding principle is the necessity for ceaseless and closely knit interaction and mutual support at all-times and in all situations. The third principle is an unremitting support of the advancing tanks and cavalry by all available firepower and massed blows from the air.

It goes without saying that a well organized rear service is of prime importance. No matter how far the mobile units are advanced, their supplies must reach them without interruption. This must be the main concern of the higher commanders and their staffs.

Tactics of Red Army's Mobile Team

Translated by NICHOLAS COROTNEFF

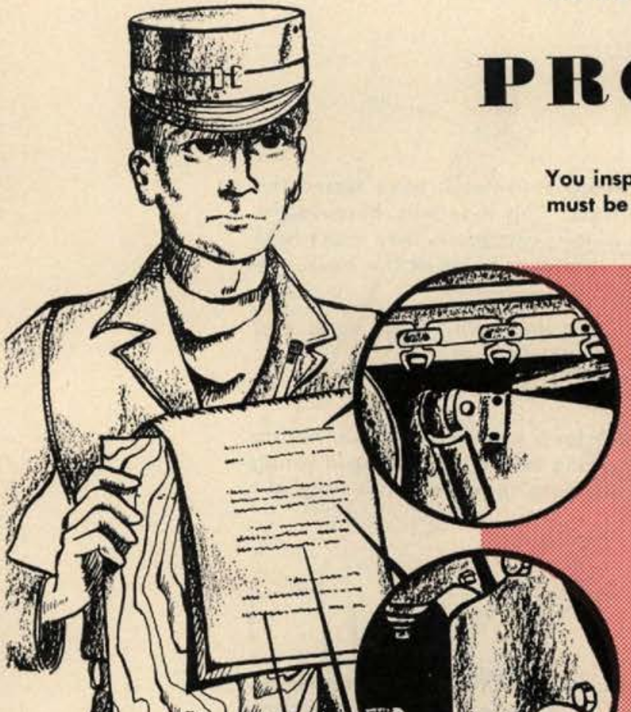
"How would you do it?"

SITUATION:

You are the Company Commander of Company A, 1st Medium Gun Tank Battalion. Your company is equipped with M48 Tanks. You are conducting a company inspection in your tank park.

PROBLEM:

You inspect your tanks and find the following deficiencies that must be corrected.



On one tank, you note a scored place on the tank hull where the paint is rubbed off. What is wrong, and how should it be corrected?

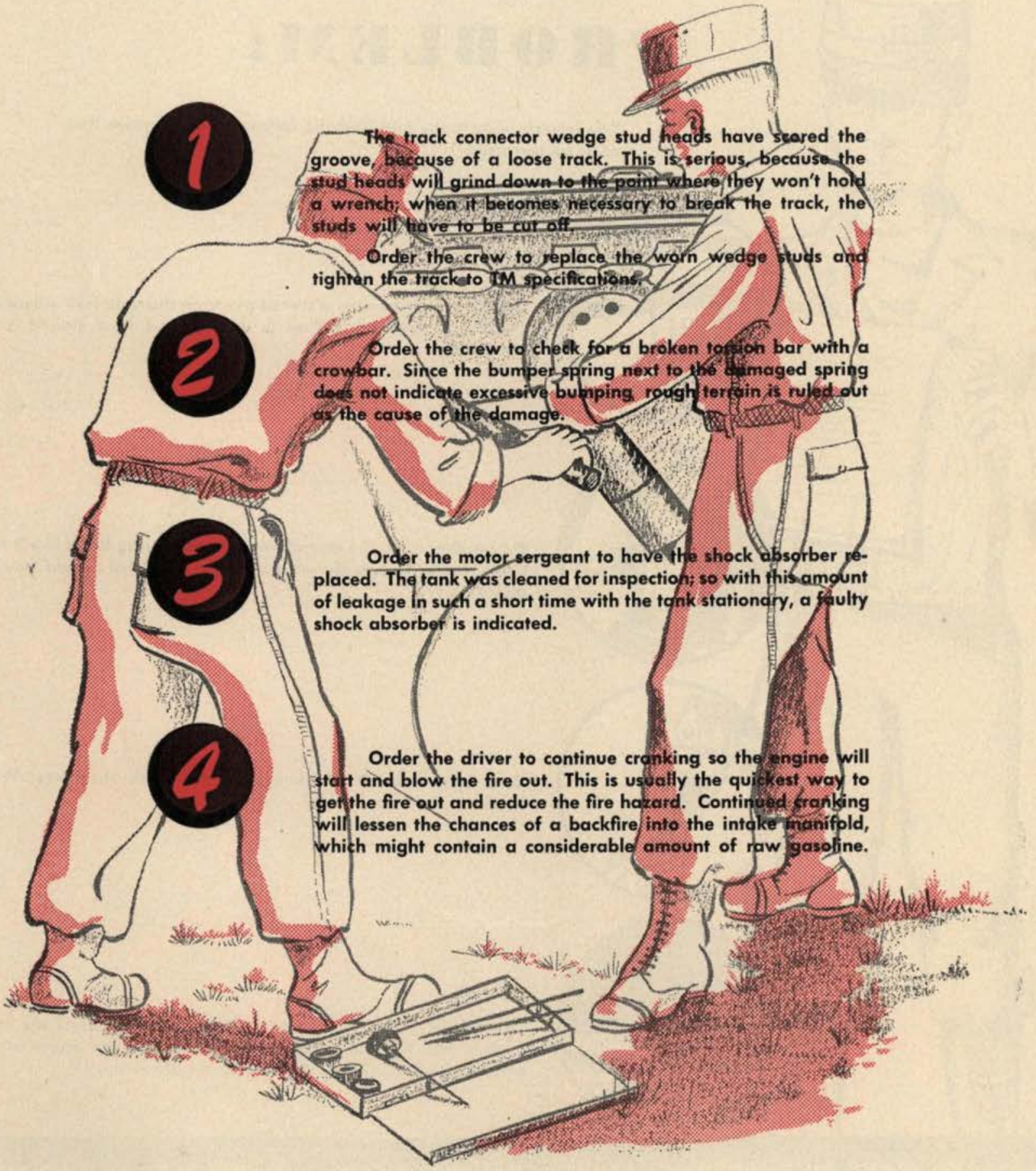
On another tank, the end of one bumper spring looks like it had been struck repeatedly with a hammer. What would you do about this?

On a third tank, oil is leaking from the shock absorbers. What would you do about this?

You instruct the driver of one of your tanks to start the tank engine, and while the starter is cranking it a fire occurs in the exhaust muffler. What would you do about this?

AN ARMORED SCHOOL PRESENTATION AUTHOR: MAJ W A KYDLAND ILLUSTRATED BY PVT P A CIANO

Solutions



1

The track connector wedge stud heads have scored the groove, because of a loose track. This is serious, because the stud heads will grind down to the point where they won't hold a wrench; when it becomes necessary to break the track, the studs will have to be cut off.

Order the crew to replace the worn wedge studs and tighten the track to TM specifications.

2

Order the crew to check for a broken torsion bar with a crowbar. Since the bumper spring next to the damaged spring does not indicate excessive bumping, rough terrain is ruled out as the cause of the damage.

3

Order the motor sergeant to have the shock absorber replaced. The tank was cleaned for inspection; so with this amount of leakage in such a short time with the tank stationary, a faulty shock absorber is indicated.

4

Order the driver to continue cranking so the engine will start and blow the fire out. This is usually the quickest way to get the fire out and reduce the fire hazard. Continued cranking will lessen the chances of a backfire into the intake manifold, which might contain a considerable amount of raw gasoline.

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LEYTE:
The Return to the Philippines

LEYTE: The Return to the Philippines. By M. Hamlin Cannon. 420 pp. Maps and Index. Government Printing Office, Washington, D. C. $6.75.

**Reviewed by
DR. R. M. PAONE**

THIS volume is one of the series United States Army in World War II and the fifth to be published in the subseries, The War in the Pacific, under the guiding hands of Drs. K. Robert Greenfield and Louis Morton.

In a book of some twenty-two chapters spaced over 370 pages of narrative the author has displayed a comprehensive research into American and Japanese Army records as well as a somewhat cursory use of Navy and Air Force records. He divides the Leyte campaign, which virtually terminated the period of limited offensives, bypassing, and is-

*Feature Reviews
Exclusive with*
ARMOR

U. S. Army

The Author

U. S. Army

Doctor M. Hamlin Cannon served in the Pacific during World War II with the Navy. He received his Doctorate from American University, Washington, D. C. Since the war he has worked as an Archivist, National Archives, and as policy analyst, with the War Production Board. He is presently assigned to the Special Studies Division, Office, Chief of Military History, Department of the Army.

The Reviewer

U. S. Army

Doctor R. M. Paone served in Europe during World War II as an enlisted man and later as an officer in a Combat Engineer Group. He received his Doctorate from Georgetown University. He has served as historical consultant and civilian advisor to the Department of the Army in matters relating to military aid. He is presently assistant professor at the United States Naval Academy.

land hopping, into five major parts; the Southern and Northern Leyte campaigns, the struggle in the mountains, the battle of the ridges, and lastly the Westward drive to the sea which culminated in the Ormoc Valley campaign and the complete fall of Leyte.

Naturally the emphasis in this volume is concentrated on the work of the ground soldier, although the author admits that the "Leyte Campaign, like other campaigns in the Pacific, was waged on the land, in the air, and on and under the sea."

In order to place the Leyte campaign in its proper focal position an author must present a crystal clear picture of the planning and purpose as well as the execution of the course of action directed. The significant factors which resulted in the final decision to attempt the Leyte assault and campaign were many and varied. They extended far beyond the slight implications of a mere difference of opinion between General MacArthur and Admiral King on the question of bypassing Leyte. They involved strategic as well as political considerations in regard to the shortest and surest way to victory for the United States.

Naval strategists, led by Admiral King, considered that an assured control of the Central Pacific Area rather than a recapturing of the Philippine Islands was the the quickest and most immediate route to victory over the Japanese forces. Admiral King felt that Saipan, Guam, and Eniwetok afforded possible suitable bases for the United States naval forces and that a direct assault on Formosa and then Japan could be sprung along the lines of these islands. Subsequently, if it were still necessary, there would follow the campaign to liberate the Philippine Islands. It was considered that the capture of Formosa would gain for the United States a control of those sea lanes by which Japan received from the South essential supplies of oil, rice, and other commodities for the promulgation of her war effort.

As the discussions among our military planners assumed a more intense character the Chief of Naval Operations asserted that the cost involved in the taking of Manila Bay at this time would be too high. It would necessarily involve the eventual utilization of more ships, planes, matériel, and troops as well as a tough, plodding type struggle through the entire length of the Philippine Archipelago which he hoped to avoid. Though Formosa was not considered in any way a simple target, Admiral King felt that the only real merit to the plan for the invasion of the Philippines at this time was of a political nature—since the United States was committed to aid those Filipinos who were fighting the Japanese.

On the other side General MacArthur, whe really had fathered the plan for the recapture of the Philippines, claimed that the Japanese forces were too numerous and too concentrated in the Archipelago and therefore insisted on island hopping through this area before attacking those islands closer to Japan.

Into this breach stepped President Roosevelt who as Commander in Chief visited Pearl Harbor to confer with Admiral Nimitz and General MacArthur. At this conference General MacArthur explained the concentration of Japanese forces in the Philippines, emphasized the moral commitments of the United States to the 18 million Christians in the islands as well as his own solemn promise that American troops would return to those areas in victory, and was able to persuade the President to his view. Accordingly the planners of the Joint Chiefs of Staff rewrote MacArthur's basic ideas for the the invasion of Leyte and the Philippines into a directive and in September 1944 ordered him to initiate the campaign. The Joint Chiefs also ordered Admiral Nimitz to furnish fleet support, including carrier-based planes, necessary for the operation. This final decision certainly lends support to the somewhat over-magnified theme of Willoughby and Chamberlain's book entitled *MacArthur* that the Supreme Commander was the architect of the World War II victory in the Pacific.

Lest the reader be made to feel that the Leyte operation was merely another step in the island hopping operations of the Pacific war the author could have portrayed a clearer picture by emphasizing that the assault on Leyte was the most extensive amphibious operation attempted in the Pacific so far and that the greatest concentration of weapons and resources was focused on this small island. However he does point out the strategical position of the island within the Archipelago and states that "its repossession by the United States would not only divide the Japanese forces in the Philippines but would also provide an excellent anchorage in Leyte Gulf, together with sites for bases and airfields from which land based aircraft could bomb all parts of the Philippines, the coast of China, and Formosa."

The amphibious assault on Leyte required very close cooperative efforts on the part of our land, sea, and air operatives. Also it required an assured control of the sea lanes to the Leyte area. The roles of air and sea power are given somewhat less than minor roles in this operation and the reader can lose sight of the important parts played by each.

The American forces were confronted not only with a large concentration of Japanese land power, but also with the problem of destroying enemy Naval power in the Leyte area. The Japanese had been quick to recognize the threat to their southern source of supplies and threw their main fleet into battle in a desperate attempt to prevent an American invasion of Leyte. The United States fleet broke the back of "the whole combatant strength of the Japanese Navy" which had converged on Leyte Gulf. Without the Naval victory the American position on the island would have been "calamitous." If Japanese naval power had prevailed Leyte possibly could not have been taken at the time, nor the remainder of the Philippine Islands when they were.

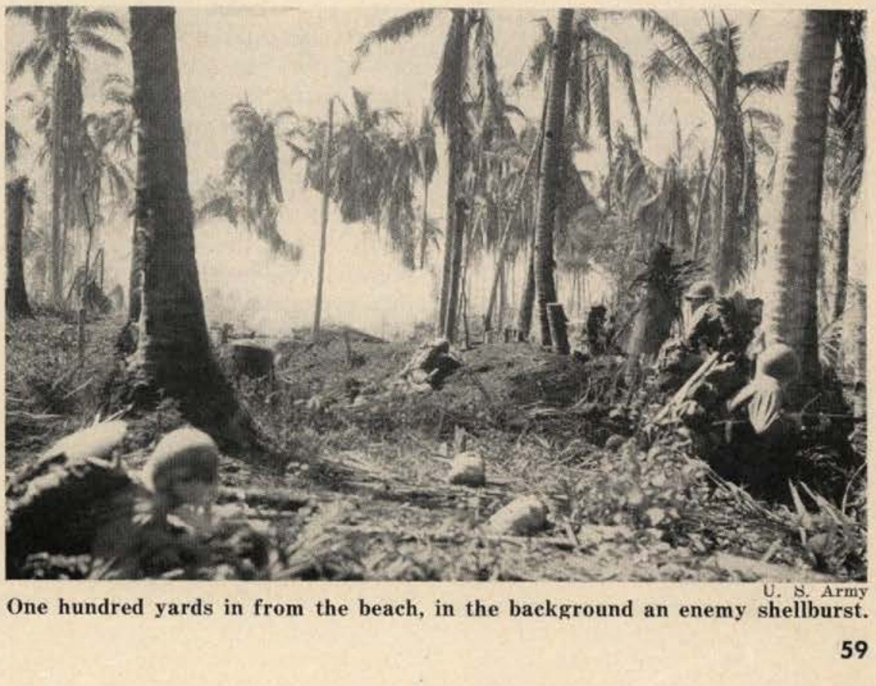
Yet the battle for Leyte Gulf is given a cursory account only. The author makes no comment on the provocative action by Admiral Halsey in suddenly taking off with all his forces to attack a decoy Japanese carrier group and thus exposing the Leyte beachhead to attack by Admiral Kurita's main battleship force. One could well ponder the disastrous consequences for the American forces on Leyte had not Kurite inexplicably abandoned his attack when victory seemingly was within his grasp.

However the author does give a clear account of the furor of fighting on the part of both Americans and Japanese. An enemy soldier who found time to confide in a diary wrote while watchfully awaiting the American advances in the San Pablo area that he felt "alive during the night and dead during the day. Though life and death are separated by a thin sheet of paper I will not die until I see the face of a Yankee."

Symbolic of American bravery and stamina is the related tale concerning Pvt Harold Moon on Hill 522 and how he alone held a Japanese platoon at bay for four hours during the early hours of 22 October. When the dawn came, the entire Japanese platoon with fixed bayonets charged toward him. "From a sitting position he fired into the Japanese, killed eighteen, and repulsed the attack. He then stood up and threw a grenade at a machine gun that had opened fire on his right. He was hit and instantly killed. The Japanese then resumed their attack, but the remnants of Moon's platoon fixed bayonets, charged and succeeded in breaking through the enemy line."

Too, the author shows that the Japanese soldier on Leyte was not the devil-may-care suicidal type often participating in reckless charges and unnecessary sacrifices. Rather the Jap on Leyte displayed excellent fire discipline and an effective control of all arms. More like the diary confider mentioned above, the Jap soldier withheld his fire until he saw his target or until it would have "the greatest possible effect."

Then there is the story of the Japanese who remained behind to delay and fight the American advance in the Ormoc area which had become a blazing inferno of bursting white phosphorus shells and ammunition dumps. They hid in spider holes


U. S. Army

One hundred yards in from the beach, in the background an enemy shellburst.

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beneath the remnants of buildings and stubbornly kept up a futile resistance until overcome by a superior enemy.

With the fall of the Ormoc Valley to United States troops the Japanese forces disintegrated. The morale and physical condition of the men were very low and desertion became quite common. The problem of the wounded became serious for the Japanese officers because of the lack of adequate medical facilities. This in turn forced many of them in the combat areas to attempt to persuade their men to commit suicide—and many of them did so quite willingly.

U. S. Army

Investigating a native hut on Dinagat Island as we push the enemy inland.

Another point, among others, of particular interest to this reviewer was the diminutive section on "Welfare of the Men" in Chapter XIV. Here the author points out that many American officers were indifferent to the well-being and comfort of their men and that one corps had sufficient rations of all types available, but the meals served the men were poorly prepared and monotonous. No further explanation of this situation is attempted by the author, nor is any reason for this condition noted. It is also stated that as late as ten days after the landing "no unit—not even any of the fixed installations, including higher headquarters—operated a mess or served hot meals." Then the author continues and points out that only a few units made a genuine effort to get their men under shelter from the torrential rains even when the tactical situation permitted.

Now, why was all this so? The research does not indicate any attempt to obtain the explanation for these apparent instances of poor leadership. Could it be that for the morale of the men fighting at the front an indifferent attitude concerning hot meals was displayed in the fixed areas? Also, did the fluid situation at the front during the first days permit a variety of well-prepared meals in those units which were serving "poorly prepared and monotonous" meals?

In the same section the author quotes from "Krueger's Critique, Sixth Army Operations Report, Leyte" in which General Krueger said: "It must never be forgotten that the individual soldier is the most important single factor in this war. . . . He is expected to do a lot including risking his life. But to get the most out of him, he must have the feeling that everything possible under existing circumstances is being done for his well-being and comfort. This is a prime responsibility of command. . . ." That General Krueger's remarks can be applied to careless leadership there is no doubt, but that they were directed to the officers of the units above is nowhere explained by the author. The advice given by General Krueger can be applied to particular situations and to those unit commanders fulfilling their command responsibilities from the highest General to the lowest grade noncommissioned officer.

Another apparent vacuum in the author's study of the Leyte campaign concerned the part played by the services of supply. No one could possibly disagree with the fact that lack of roads and a difficult terrain coupled with torrential rains all constituted many of the major problems facing the army commanders. These elements, in turn, created vast difficulties for the engineers and their Commanding General in the Pacific, Major General Hugh Casey, whom General MacArthur also appointed director of supplies. In spite of fierce combat and unfavorable conditions, roads and pathways for tanks suddenly appeared during the campaign, as did airfields and improved harbor conditions. Little effort was made to integrate these accomplishments into the narration. As a result even a superficial portrayal of supplying an army of 150,000 men is somewhat conspicuous by its absence—even though the book purports to emphasize the work of the ground soldier. Without adequate services of supply the infantry would be like a mirage amid the vast sands of a scorching desert.

U. S. Coast Guard

H-hour plus minutes—the first aid men were busy caring for the wounded.

In this book the author has illustrated an adept ability to wade through the voluminous army reports concerning the Leyte operation. However, his attempts to bestow credit on all the units and many of the commanders who participated in the campaign and his constant references to them detract somewhat from the reader interest. The attachment to the binding of a pull-out sheet listing all units, the composition of the more important ones, and the officers concerned with the campaign could have eliminated many of these distractions. As it is, much of the work reads like a dissertation—very fact finding, quite scholarly and academic, but lacking a varied tempo. Had the parts played by the more important units and commanders been interwoven into a series of climatic highlights (there were many in the campaign) a more intense reader interest could have been developed. Military history concerns some of the most exciting accomplishments of man and should be written, whenever possible, with this in view. It is not only informative, but also inspirational and utilitarian—the latter in the sense that it can reflect the results of lessons which should have been but which were not learned.

Dr. Cannon's book is a significant work in the field of American military history. With its multitudinous references to and use of primary materials it serves as an excellent source book for the Pacific campaign of the Army during World War II.

Historians interested in this phase of military operations should definitely use this work.

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March-April, 1955

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(See page 4)

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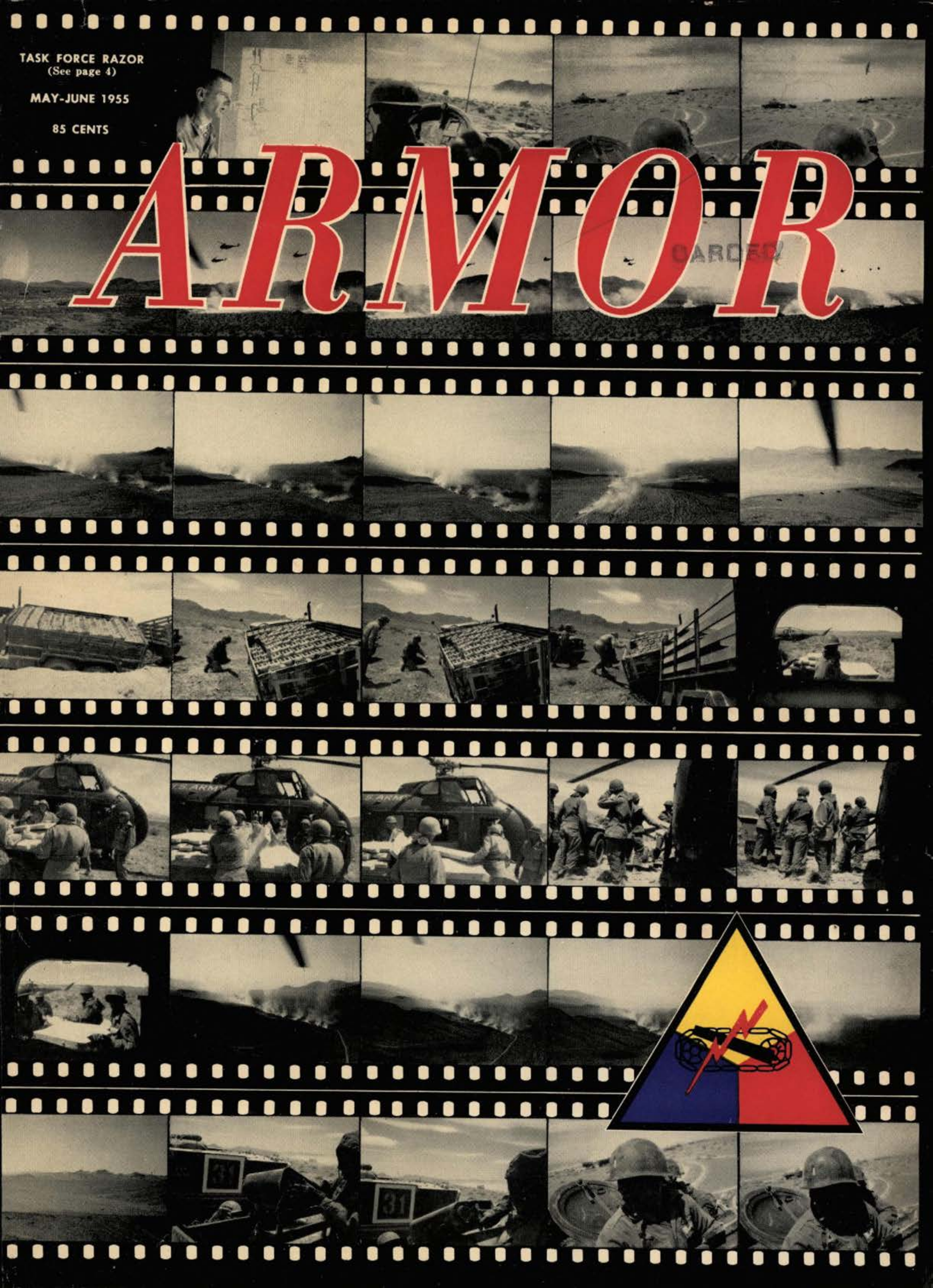

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LETTERS TO THE EDITOR

For a Job Well Done

Dear Sir:

Enclosed is my personal check, in the amount of $9.50, for two associate memberships in the United States Armor Association for Master Sergeant James L. Harris, 4404 Mersington, Kansas City 30, Missouri and Sergeant First Class Robert P. Powell, 2851 Topping, Kansas City 28, Missouri.

These associate memberships were awarded to the above noncommissioned officers of the 102d Reconnaissance Company for outstanding service to this unit, by the commanding officer, 1st Lt. James S. Lowry, Jr., Armor-USAR, and myself.

Please enroll them and enter their subscriptions to *ARMOR*.

CAPTAIN EARL T. NEWTON, JR.

Unit Advisor
102d Reconnaissance Company
Kansas City, Missouri

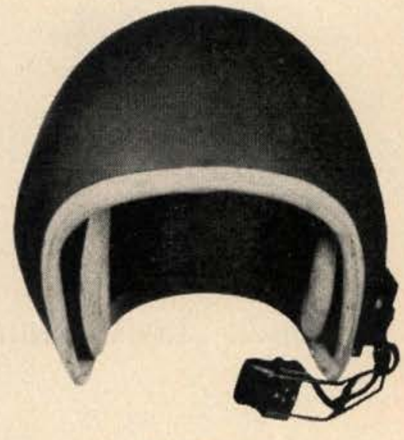
The New Tanker's Helmet

- *In the January-February issue of* ARMOR *we published a letter to the Editor concerning the status of a new helmet for the tanker. At the same time a copy of the letter was forwarded to Board No. 2, at Fort Knox. The answer to this request is published herewith.* ED.

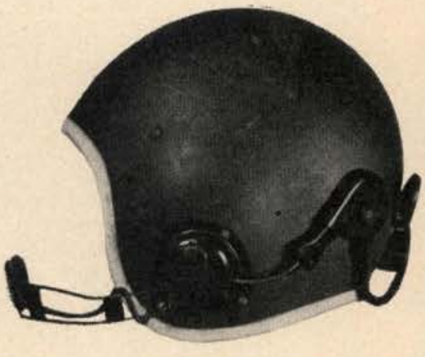
Dear Sir:

The following information is furnished per your letter request dated 16 December 1954.

As you know, there is currently no standard helmet, combat vehicle crewman, although presently issued helmets of the universal type have been found



Front View.



Side View.

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Rates: See bottom of contents page.

In this issue ARMOR is happy to present a special feature:

General George S. Patton, Jr's
"Psychology of Leadership"
by
Brigadier General Harry H. Semmes

Many of the quotations are taken from General Patton's personal papers which the author had access to in the preparation of a forthcoming book to be released in the Fall. In view of the importance being placed on leadership, this article was prepared so that it can easily be removed from the magazine without destroying the issue.

You can obtain a reprinted copy of this excellent article on leadership by sending 25 cents to cover the mailing and handling charges.

unsuitable for use by combat vehicle crewmen. However, development of a new and promising item, the Helmet, Combat Vehicle Crewman, T53-2, is nearing completion. A prototype model has been tested and a modified version is currently being procured in limited quantities for further evaluation. A decision as to whether this helmet should be issued to troops will have to await the outcome of tests.

The prototype helmet consists of a helmet shell with integral communications equipment. The shell is of one-piece laminated nylon construction, cut in such a manner as to afford maximum protection and still allow unobstructed use of tank fire control equipment. It is equipped with padded earphones, a microphone on a swivel boom, and a toggle type selector switch at the point of juncture of the boom and left earflap, thus eliminating the chest set. Goggles are being developed for use with the new helmet. This helmet, complete with communications equipment, weighs less than 3 pounds and affords adequate bump protection as well as ballistic protection.

COLONEL PERCY H. BROWN, JR.
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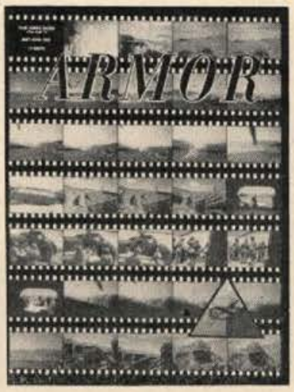

THE COVER

The composite series of photographs were taken by Mr. Bob Phillips of the Black Star Publishing Company, Incorporated. The scenes follow Task Force Razor as it moved across the desert from Camp Irwin, Barstow, California to Desert Rock, Nevada prior to the open Atomic blast where Armored units made the now historic breakthrough.

COMBAT SUPPORT IN KOREA

by

Capt. John G. Westover

The thousands, soldier and civilian, who have read and enjoyed and profited from COMBAT ACTIONS IN KOREA will want this companion book. Here is more combat action, plus the workings of the vast logistical system that makes it possible for the infantry, artillery and armor to fight.

Every member of every technical and administrative service will want a copy of this record of service to the line. Every soldier should have a copy to fill in the blanks of his own experience.

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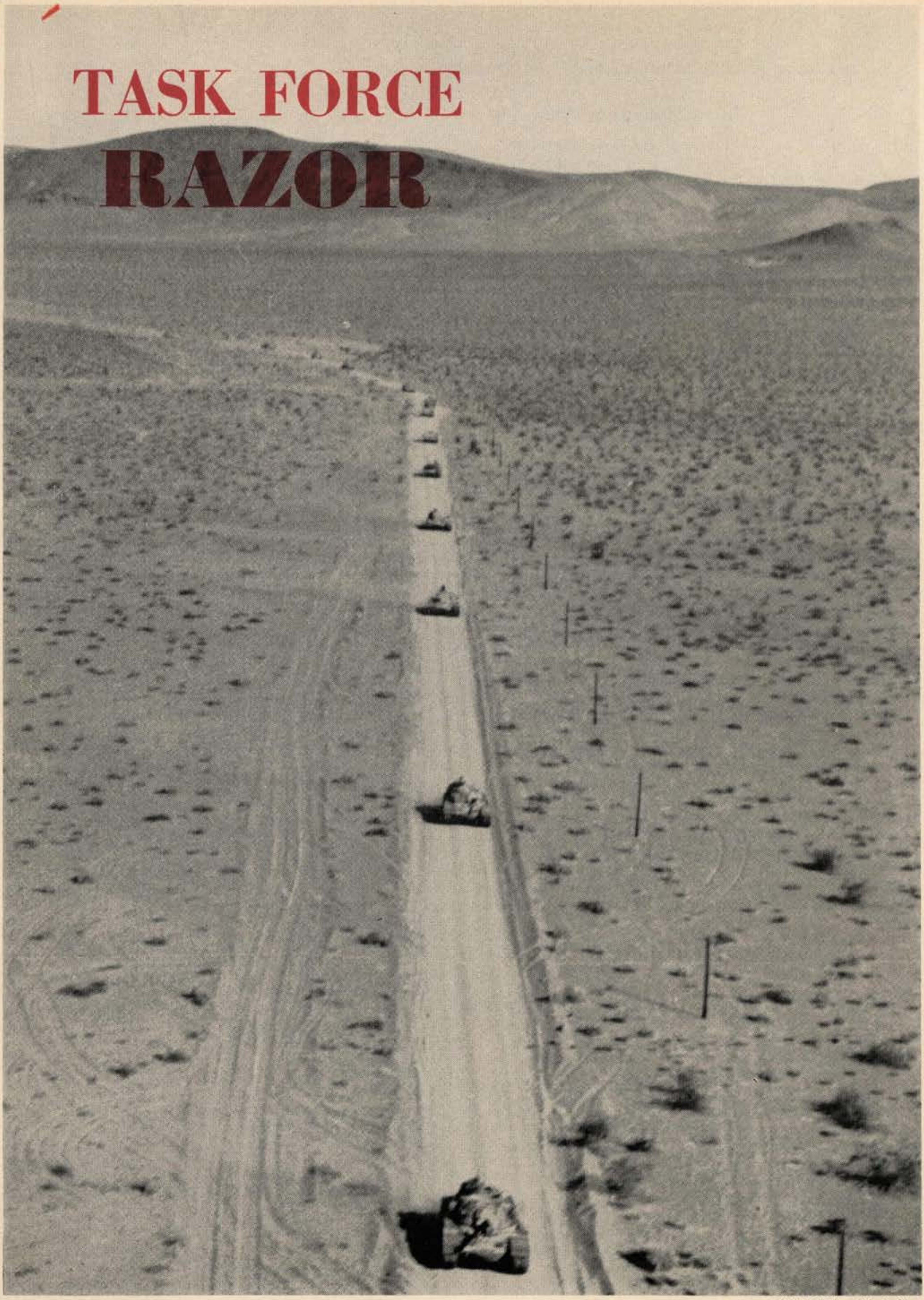
TASK FORCE RAZOR



Bob Phillips, Black Star

U.S. Army

Commencing the long journey across the Desert as General Sheldon, Camp Irwin Commander, returns the salute of one of the Tank Commanders of the 723d.

The Overland March

170 miles of natural roadless desert terrain,
from Camp Irwin to Desert Rock . . .

THE month of April, 1955, will go down in military history as one of utmost significance as far as Armor and the Army are concerned. All eyes were turned toward Camp Irwin, California and Desert Rock, Nevada where the 723d Tank Battalion (Reinforced) made an overland tactical march, one of the longest ever made on natural roadless terrain, of some 170 miles from Camp Irwin to Desert Rock. Upon the completion of this three-day march, this task force again made history when it participated in the exploitation phase following the atomic blast.

Troops that supported the 723d Tank Battalion were:

- 1st Combat Aviation Company, 1st Armored Division
- C Company, 510th Armored Infantry Battalion
- A Battery, 22d Armored Field Artillery Battalion
- 1st Platoon, B Company, 510th Armored Infantry Battalion
- 1st Platoon, C Company, 24th Armored Engineer Battalion

Lieutenant Colonel John Gray Wheelock III, Commanding Officer, 723d Tank Battalion, Camp Irwin, California, was the task force commander. All supporting units are stationed at Fort Hood, Texas. The Armored operation was planned and directed by Brigadier General Charles A. Sheldon, Commanding General, Camp Irwin.

The Overland March

To prepare for this gruelling mission, the tankmen twice spent three to four days on the desert hills and plains surrounding Camp Irwin rehearsing their duties. In addition, between trips to the field, they spent long hours in tank and truck maintenance or in classroom sessions.

Once the trek across the desert sand and rock commenced, the members of the task force were confronted with a series of tests that called for the use of all of its combat capabilities.

There was a maximum testing of the effectiveness of armor, special situations requiring the use of Infantry, Artillery and Engineers. Also, there were several missions for the task force's plans and helicopters, including the air-lifting of troops.

By coincidence, the length of the tank march was almost identical with the distance of the historic mule-team route, 165 miles.

Comparison of the mechanized column and the animal-drawn one ends, however, with the general appearance and the distance of their treks across the barren terrain of the hilly desert.

Instead of 10 wooden wagons, costing approximately $1,000 apiece, the 1955 train had 55 $250,000 tanks, as well as 24 armored personnel carriers and some 200 military trucks.

Each of the wagons in the column that won world fame at the turn of the century weighed only 7,900 pounds, while each of the Patton-48 tanks of the present day represented 99,000 pounds of armor-plate and heavy firepower.

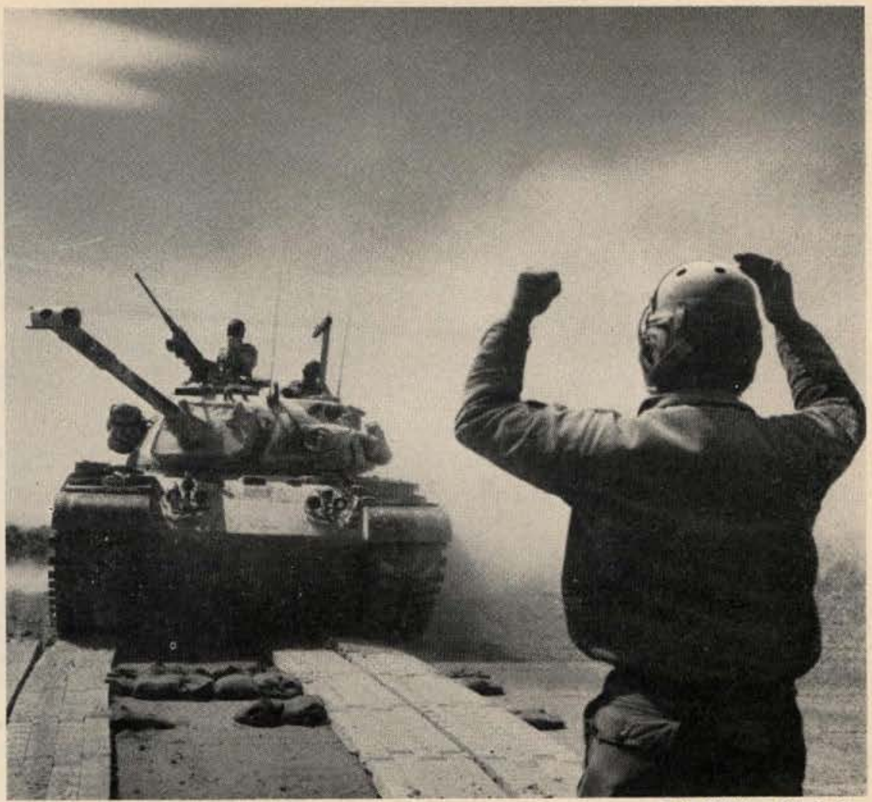
Although the wagons were able to make only 18 miles a day, the armored column travelled up to 62 miles on one of its three days of travel, despite the fact that the movement was tactical and overland.

Water was the biggest problem of the mule-train drivers. To solve it, wagon-supplied "dry camps" were set up along the route. The supply problem of today's mighty military machines, on the other hand, was gasoline. Supply trucks were shuttled to provide fuel which was consumed each day of the march.

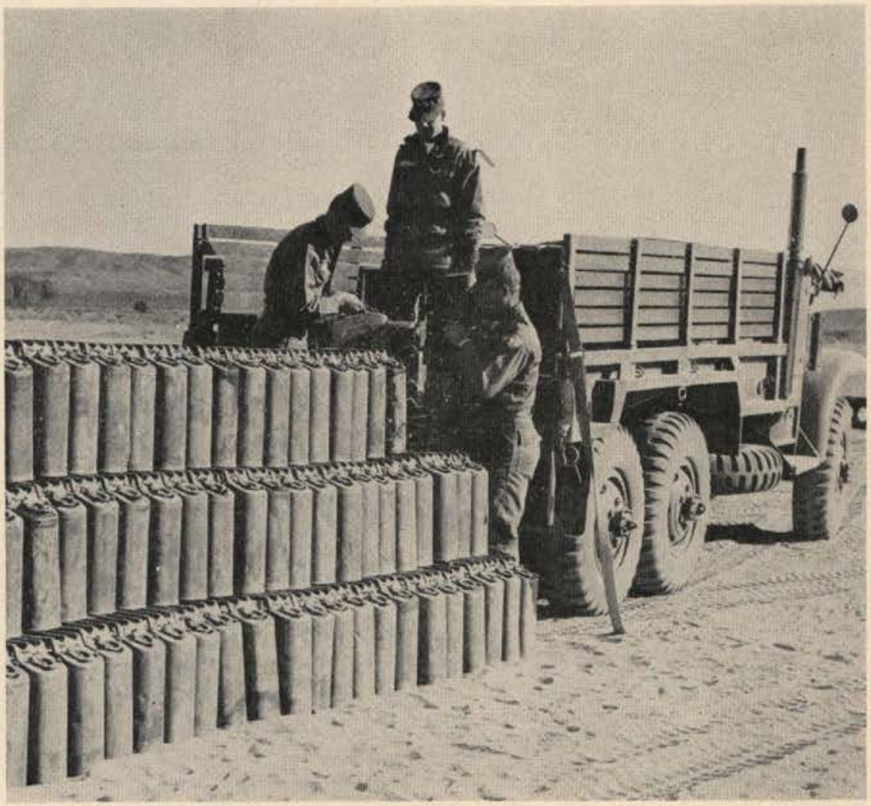
Not actually, but in theory, the tanks crossed "streams" as they maneuvered their way over the sandy plains and rocky mountains to Camp Desert Rock. The simulated streams were the paved highways that the 50-ton Patton-48 tanks had to cross en route.

To avoid damaging public highways, Engineer troops of the task force built wooden road mattings for the tank treads to run over. They were built to the specifications of metal tread bridges normally used for stream crossings.

Since the three-day, cross-country march was tactical, combat realism was added to the move by designating the roads as streams. This move


Bob Phillips, Black Star

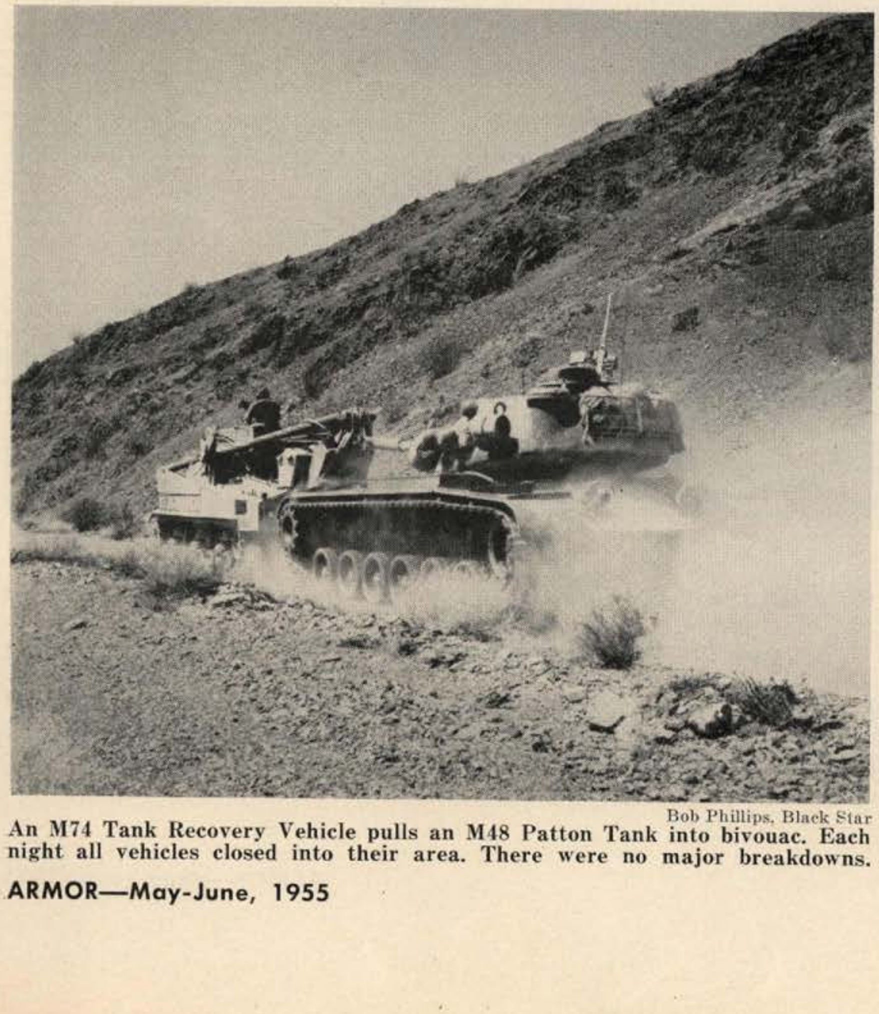
Guiding the Task Force vehicles over the simulated streams. To avoid damage to public highways Engineer troops built wooden road mattings to specifications.


U.S. Army

The biggest problem facing the Task Force was known beforehand. Gasoline supply! Nearly 4,000 five-gallon cans were required to keep the vehicles moving.

Bob Phillips, Black Star

Helicopters carried Infantrymen to key terrain features during the tactical march. Here they are being loaded to seize a hill while the tanks move on.



Bob Phillips, Black Star

An M74 Tank Recovery Vehicle pulls an M48 Patton Tank into bivouac. Each night all vehicles closed into their area. There were no major breakdowns.

was accomplished despite varying temperatures from 20 to 60 degrees, and winds from 5 to 80 knots. Task Force Razor proved that we can beat the climate but it also accentuated the tremendous gasoline problem.

The Army Combat Aviation supported this move, lifting Infantry to seize key terrain features on the flank as the Armored columns rolled on. In addition, they hauled supplies, ammunition, and observed for the Artillery. They were saddled with the additional problem of tranporting news correspondents and photographers who accompanied the task force.

Ordnance support was more than adequate. There were no major breakdowns and all vehicles arrived in bivouac each night, the entire column closing into position on its third and final day.

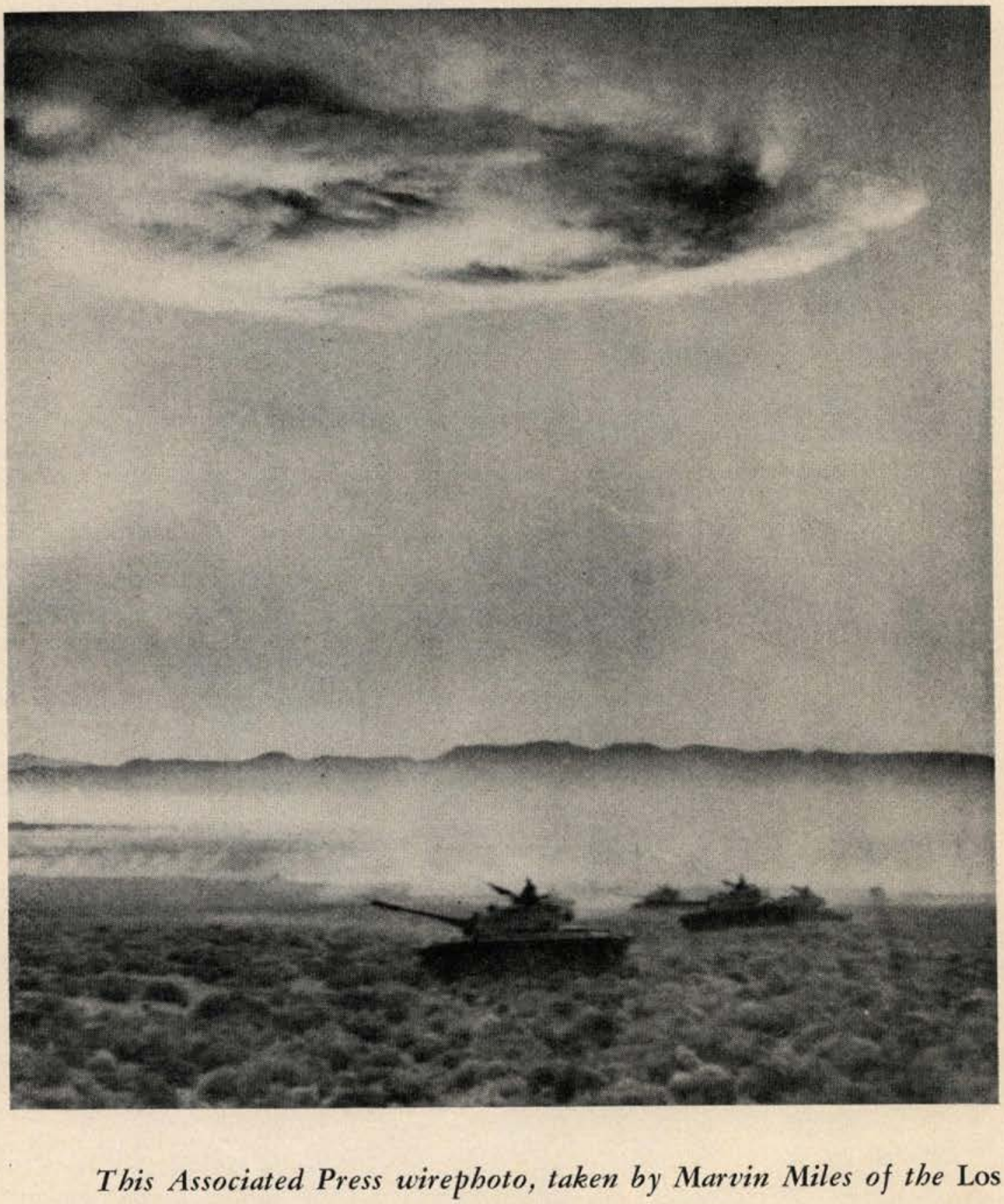
Some of the improvements that made this performance possible, and thereby demonstrated the efficiency of armored striking forces, included more powerful tank engines, power steering, improved vehicle design, and better communications. Even more important, from the standpoint of Armor's capabilities, were improved firepower and fire control.

Steering a tank, prior to the radical post-war changes, had been a manual operation. Now, power steering which enables a tank driver to spin his vehicle on one track and have far better control of it on maneuver, is standard.

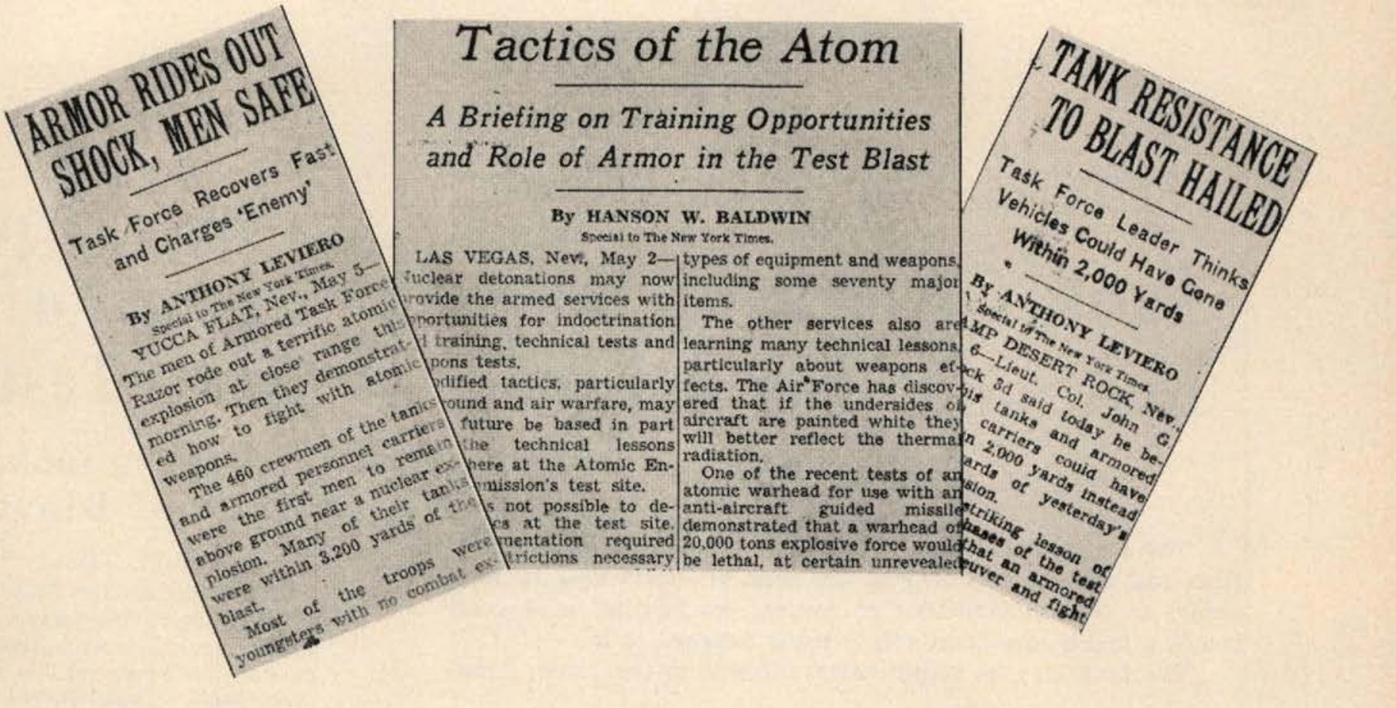
Tremendous improvements in radio communications have facilitated tank operations. Radio communication in World War II and for a time thereafter was often bad; now, reception is excellent except under drastic atmospheric conditions, and communication range reaches out from 10 to 17 miles. This makes possible greater control and coordination of widely spread armored elements.

Structure of tanks has changed with the times. Hulls are lower and angled for greater protection against enemy gunfire. Many hits would bounce off a turret now that previously would have "holed" World War II tanks. Tracks are wider, too, and treads will stand up longer in movement across the rocky, sandy terrain of this desert area. In every way, armored vehicles are vastly more durable and sturdy.

The Breakthrough



This Associated Press wirephoto, taken by Marvin Miles of the Los Angeles Times, *depicts Task Force Razor moving across the dust-shrouded desert shortly after the device was detonated. This test proved the effectiveness of Armor against atomic blast, fire and fallout.*



ARMOR RIDES OUT SHOCK, MEN SAFE

Task Force Recovers Fast and Charges 'Enemy'

By ANTHONY LEVIERO
Special to The New York Times.
YUCCA FLAT, Nev., May 5—
The men of Armored Task Force
Razor rode out a terrific atomic
explosion at close range this
morning. Then they demonstrat-
ed how to fight with atomic
weapons.
The 460 crewmen of the tanks
and armored personnel carriers
were the first men to remain
above ground near a nuclear ex-
plosion. Many of their tanks
were within 3,200 yards of the
blast.
Most of the troops were
youngsters with no combat ex-

Tactics of the Atom

A Briefing on Training Opportunities and Role of Armor in the Test Blast

By HANSON W. BALDWIN
Special to The New York Times.

LAS VEGAS, Nev., May 2—
Nuclear detonations may now
rovide the armed services with
pportunities for indoctrination
training, technical tests and
pons tests.
dified tactics, particularly
ound and air warfare, may
future be based in part
the technical lessons
here at the Atomic En-
mission's test site.
s not possible to de-
cs at the test site.
mentation required
trictions necessary

types of equipment and weapons,
including some seventy major
items.
The other services also are
learning many technical lessons,
particularly about weapons ef-
fects. The Air Force has discov-
ered that if the undersides of
aircraft are painted white they
will better reflect the therma
radiation.
One of the recent tests of an
atomic warhead for use with an
anti-aircraft guided missile
demonstrated that a warhead of
20,000 tons explosive force would
be lethal, at certain unrevealed

TANK RESISTANCE TO BLAST HAILED

Task Force Leader Thinks Vehicles Could Have Gone Within 2,000 Yards

By ANTHONY LEVIERO
Special to The New York Times.
MP DESERT ROCK, Nev.,
6—Lieut. Col. John G
ck 3d said today he be-
is tanks and armored
carriers could have
n 2,000 yards instead
ards of yesterday's
sion.
triking lesson of
hases of the test
that an armored
uver and fight

The Breakthrough

The flash launched the main event of Exercise Desert Rock VI and Army participation in the current atomic test series at the Nevada test site.

In this operation, effectiveness of Armor immediately following an atomic blast was tested by poising the task force as close as 3,100 yards to ground zero and launched soon enough to capitalize on the combined power of nuclear weapons used in conjunction with Armor.

Development of tactical weapons for use in close coordination with ground troops has focused attention on the value of Armor in a possible atomic war because of its versatile characteristics.

The mobility, firepower and shock action of tanks in mass formation against an enemy, plus the protection of armor-plate against flash, blast and radiation provided by armor-plate, made this armored unit ideal for a quick follow-up on the damaging effects of an atomic weapon.

Seven factors were expected to be tested in the demonstration:

1. Immediate exploitation—effectiveness of combined shock and casualty-producing action with the dual punch of the atom and Armor.

2. Proximity to blast—distance from which the task force can wait for the blast and be ready to move in for rapid follow-up action.

3. Delay in movement—how soon after detonation the armored unit can enter the blast area safely to exploit the damage of the weapon.

4. Deployment and organization—most advantageous formations, speed and directions of attack in moving through the target area.

5. Field expedients—what on-the-spot aids should be developed or employed to facilitate passage through the blast area.

6. Supporting arms—most effective use of artillery and tactical aircraft to support the armored force in its attack.

7. Safety—precautions necessary to insure success in the task force's mission without causing undue casualties to soldiers.

Simulated Enemy

A ghost battalion—empty tanks, unmanned artillery pieces and small arms which have withstood many atomic blasts were deployed in a defensive pattern.

Just 5,000 yards from ground zero, these weapons along with bunkers, barbed wire and dummy mines were arrayed in a defensive position through which the armored force had to pass to reach its objective.

The antitank defense was arranged by Captain Ira W. Rutledge, commander of the ghost battalion.

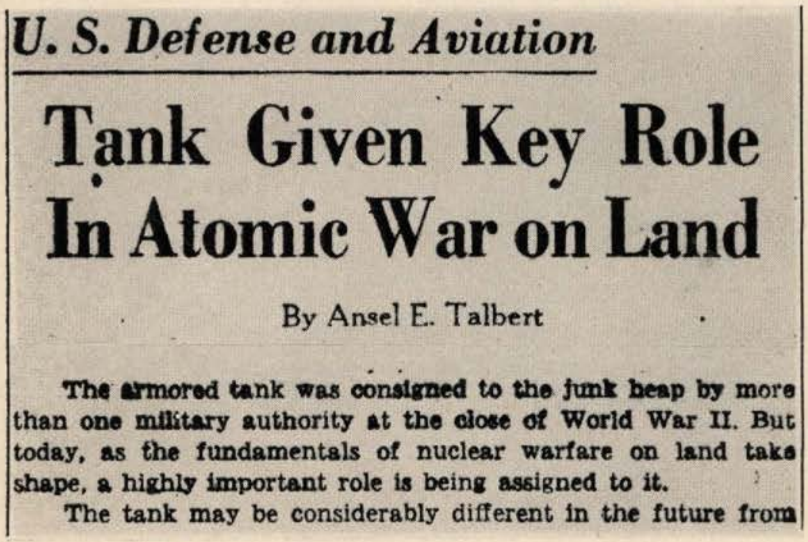
The defensive mission was to delay the armored force long enough for reserve elements to rush up from the rear and support the defense of the high ground.

Included in the defense were eight empty bunkers overlooking the route of advance. Machine gun and antitank gun emplacements between the bunkers were silent while the armored column lumbered past positions that, in actual combat, would have been withering ambushes. Theoretically, at least, serious damage would have been inflicted on the oncoming force.

Mine fields, minus detonating charges, and booby traps without trip wires were laid out to "shatter" treads of the armored vehicles, immobilizing and exposing them to leisurely destruction from unmanned rocket launcher positions.

Other impediments set up in defense by the ghost battalion included barbed wire, blocking positions and mutually supporting tanks. The tanks, little more than empty hulls, are veterans of former blasts.

Another history making event occurred when battlefield surveillance was tested. All the action was seen first hand through that latest innovation to the battlefield—television. To provide an "up front" view a television camera operated from an Army aircraft in the forward area tracking the tanks through the area and to the mythical enemy-held ground beyond. Television receivers at observation points several miles back were



U. S. Defense and Aviation

Tank Given Key Role In Atomic War on Land

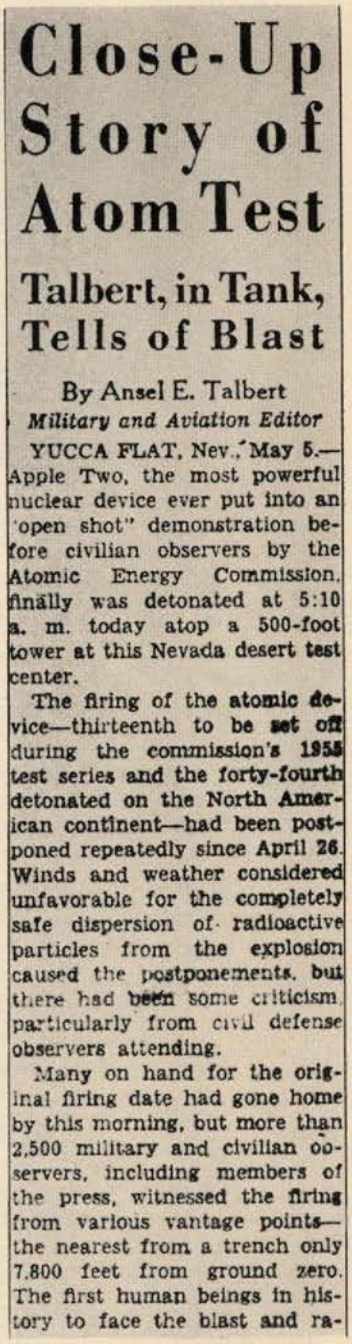
By Ansel E. Talbert

The armored tank was consigned to the junk heap by more than one military authority at the close of World War II. But today, as the fundamentals of nuclear warfare on land take shape, a highly important role is being assigned to it.

The tank may be considerably different in the future from

Bob Phillips, Black Star

Army Combat Aviation and Armor made an impressive team in all phases.



Close-Up Story of Atom Test

Talbert, in Tank, Tells of Blast

By Ansel E. Talbert

Military and Aviation Editor

YUCCA FLAT, Nev., May 5.—Apple Two, the most powerful nuclear device ever put into an "open shot" demonstration before civilian observers by the Atomic Energy Commission, finally was detonated at 5:10 a. m. today atop a 500-foot tower at this Nevada desert test center.

The firing of the atomic device—thirteenth to be set off during the commission's 1955 test series and the forty-fourth detonated on the North American continent—had been postponed repeatedly since April 26. Winds and weather considered unfavorable for the completely safe dispersion of radioactive particles from the explosion caused the postponements, but there had been some criticism, particularly from civil defense observers attending.

Many on hand for the original firing date had gone home by this morning, but more than 2,500 military and civilian observers, including members of the press, witnessed the firing from various vantage points—the nearest from a trench only 7,800 feet from ground zero. The first human beings in history to face the blast and ra-able to view the entire operation.

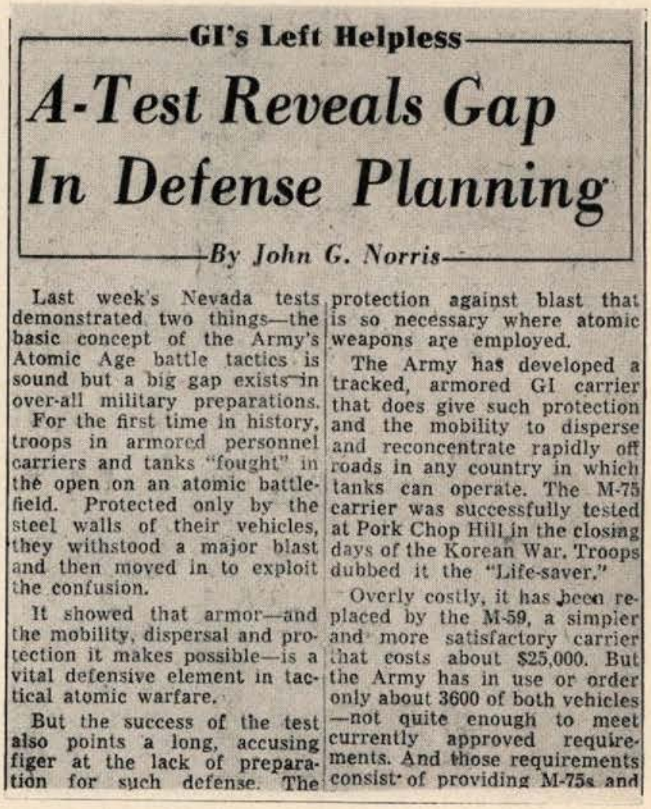
After many days of anxious waiting for ideal weather conditions, the blast, approximately 35 to 40 KTS, set in motion the final attack 0510 hours, 3 May. Eight minutes later the task force moved out toward its objective which was to secure the high ground northwest of ground zero, thus preventing simulated enemy from moving into the area. By 0600 hours, all vehicles were on the objective. Supporting Infantry, flown in by supporting Army aircraft, were put on their objective.

Since the first blast in 1951, troops had been in the area, but this was the first time they had to depend on their combat vehicles for protection from the blast.

Prior to the blast, Colonel Wheelock said: "The protection and mobility afforded by our combat vehicles should permit an armored unit to rapidly exploit an atomic blast." In retrospect this is an understatement.

U.S. Army

An earlier blast from 5½ miles from ground zero.



GI's Left Helpless

A-Test Reveals Gap In Defense Planning

By John G. Norris

Last week's Nevada tests demonstrated two things—the basic concept of the Army's Atomic Age battle tactics is sound but a big gap exists in over-all military preparations.

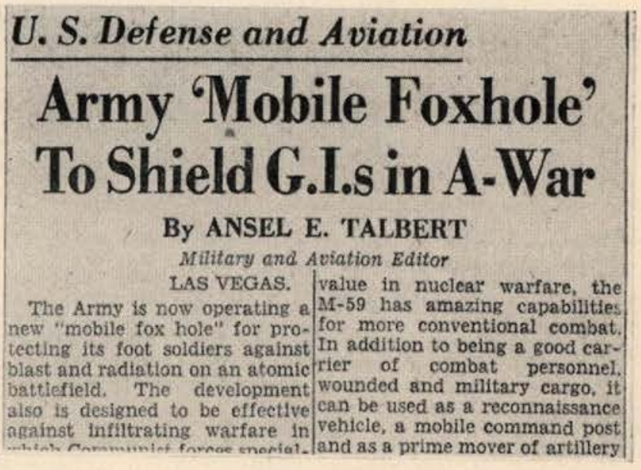
For the first time in history, troops in armored personnel carriers and tanks "fought" in the open on an atomic battlefield. Protected only by the steel walls of their vehicles, they withstood a major blast and then moved in to exploit the confusion.

It showed that armor—and the mobility, dispersal and protection it makes possible—is a vital defensive element in tactical atomic warfare.

But the success of the test also points a long, accusing figer at the lack of preparation for such defense. The protection against blast that is so necessary where atomic weapons are employed.

The Army has developed a tracked, armored GI carrier that does give such protection and the mobility to disperse and reconcentrate rapidly off roads in any country in which tanks can operate. The M-75 carrier was successfully tested at Pork Chop Hill in the closing days of the Korean War. Troops dubbed it the "Life-saver."

Overly costly, it has been replaced by the M-59, a simpler and more satisfactory carrier that costs about $25,000. But the Army has in use or order only about 3600 of both vehicles—not quite enough to meet currently approved requirements. And those requirements consist of providing M-75s and



U. S. Defense and Aviation

Army 'Mobile Foxhole' To Shield G.I.s in A-War

By ANSEL E. TALBERT

Military and Aviation Editor

LAS VEGAS.

The Army is now operating a new "mobile fox hole" for protecting its foot soldiers against blast and radiation on an atomic battlefield. The development also is designed to be effective against infiltrating warfare in which Communist forces special- value in nuclear warfare, the M-59 has amazing capabilities for more conventional combat. In addition to being a good carrier of combat personnel, wounded and military cargo, it can be used as a reconnaissance vehicle, a mobile command post and as a prime mover of artillery

Quotes from the press . . .

The New York Times

. . . To this reporter in a Patton M48 tank it was like being at the center of the explosion itself. Though virtually sealed up, the tank suddenly flooded with the most intense white light. The interior teemed with choking dust, and it seemed as if the tank itself was ripping apart.

But the 48-ton monster merely rocked a bit and in a few minutes was ready for action.

This much was new and different in the fifty-five tanks, the heaviest in this country's armory, and the twenty-four armored personnel carriers filled with infantry.

Just as soon as the shock wave passed over the battle formation the tankers aimed their big 90mm guns on the simulated enemy positions breached by the powerful atomic device.

Then they began firing their cannon and their 50-calibre machine guns, using blanks, and rolled forward toward Ground Zero.

In this way the first test of armored combat in conjunction with tactical atomic weapons was successfully under way. . . .

ANTHONY LEVIERO

The Washington Post and Times Herald

. . . For the first time in history, troops in armored personnel carriers and tanks "fought" in the open on an atomic battlefield. Protected only by the steel walls of their vehicles, they withstood a major blast and then moved in to exploit the confusion.

It showed that armor—and the mobility, dispersal and protection it makes possible—is a vital defensive element in tactical atomic warfare.

* * *

Tank division commanders want to triple the number [of M59's] being bought so they can move their supply "tail" in protected, tracked vehicles instead of in trucks. And Gen. Anthony McAuliffe, American Army commander in Europe, wants enough of them for all his forces—infantry divisions at well as tank and armored cavalry forces. . . .

JOHN G. NORRIS

The New York Times

. . . It was well known before the current test was planned that armor was an ideal weapon for use in conjunction with atomic arms. Tanks provide protection against blast, heat and radioactivity, and at the same time they furnish the indispensable element for war on a nuclear battlefield—mobility.

A tank was used in the first atomic shot at Alamogordo. Many tanks and other army vehicles have been exposed, but up until now without men in them.

Three unmanned M48 tanks that are part of the Army's display in the scheduled shot have survived six previous nuclear blasts and are still operable.

It has long been known, therefore, that armor, because of the protection given to soldiers, and particularly because of its mobility and capability of exploiting rapidly the shock effect of nuclear weapons, would be of tremendous importance in any nuclear war in which ground troops might participate. . . .

HANSON W. BALDWIN

Chicago Daily Tribune

. . . The army's operations research office is making a study of the Patton's fuel consumption. These researchers expect to get better results on the return 170 mile trek to Camp Irwin when the tanks will try for speeds nearer to the 20 miles an hour cruising speeds. Some of the poor mileage performance was attributed to low speeds over the desert.

Army psychologists assigned to the human resources research office also are studying the feasibility of cutting the Patton's gasoline consumption by training the drivers to use conservation methods.

Lt. Gen. James M. Gavin, army research and plans chief, is said to be determined to shift army combat vehicles to diesel or other fuels that are less vulnerable to atomic attack than gasoline. Gavin has asserted that gasoline supplies would be a priority target in atomic warfare. . . .

LLOYD NORMAN

New York Herald Tribune

. . . The strategic thinking behind current interest in the armored tank has been partly summarized by Field Marshal Viscount Montgomery, who said: "To me, one thing is clear—in any future war a great battle will rage in the air, but we must also be prepared as in the past for battle on land. . . . When atomic and thermonuclear weapons appeared on our horizon, the word dispersion became important."

Both the assault tank, basically an instrument for maneuvering artillery's tremendous firepower into position, and the armored personnel carrier, a "man-carrying tank" that permits infantry to attack at speeds ten to fifteen times as great as its old two-mile-an-hour clip, offer a means of giving ground troops this capability.

Tanks create for a military unit or an army the ability to concentrate so swiftly that a shift from defending to attacking could be made without ever offering too vulnerable a target for enemy atomic bombers, missiles or artillery. . . .

ANSEL E. TALBERT

Effects on Equipment at Varied Distances

Some unmanned equipment were placed at various distances from ground zero. Three Patton-48 tanks, one M24 Chaffee tank, and a T97 self-propelled 155mm gun were in position at 500 yards from ground zero. One Patton-48—placed at a three-quarter angle toward the tower, was turned over one and one-half times. Both tracks were blown off. One idler wheel was blown off. The periscope was torn off. The battery was cracked. Mud guards were bent. Gasoline and oil leaked out. The engine was not damaged.

A Patton-48 which was headed directly toward the tower was blown back about 10 feet. It suffered superficial damage. It was driven away from the site.

A Patton-48, its right side facing the tower, did not turn over. However, the right track was blown off and light metal was wrapped around the gun tube. The engine was not damaged and, with the track replaced, the vehicle was driven away.

The M24 was damaged badly. The turret was blown 300 yards away and the gun was torn out of the turret and was about 100 yards from the turret. The chassis was turned over.

The T97, subjected to all the 1955 tests at varying distances, again was a drive-away.

At 600 yards, two M24 tanks suffered superficial damage and were drive-aways.

A jeep and a three-quarter ton truck at 525 yards were "disintegrated." No identifiable pieces of them have been found.

A Mark IV LVT—placed at fifty yards from the tower—left no trace.

Wheeled vehicles from 600 to 1200 yards from ground zero were damaged badly and, for all practical purposes, were lost. However, engines, transmissions, axles, etc., are being reclaimed.

No armored personnel carriers were subjected by Ordnance to the shot.

Small arms at 600 yards were blown about but suffered little damage.

Radiation presented no problem and Ordnance recovery men were on the scene by noon, some seven hours after the shot.

U.S. Army

Inspecting dummies, clad in the new field uniform, prior to an earlier blast.

Summary

All in all it can be said it was a good day for Armor. It definitely proved that Armored units must be ready and trained to fight in case of a war where atomic weapons are employed. The ability to assemble and disperse rapidly on the ground regardless of terrain today remains as one of Armor's biggest assets. It was just recently that our Commander-in-Chief, President Eisenhower made the statement that the United States would use its *tactical* weapons if it is forced into a major war. To be trained and prepared is the Army's mission. To be able to exploit such a breakthrough is Armor's mission.

U.S. Army

Inspecting a 155mm self-propelled howitzer. The damage was negligible.

Name, Rank, ASN and DOB

Since the cessation of hostilities in Korea much has been written in all types of periodicals regarding "The Standard of Conduct of Military Personnel Liable to and After Capture." The results of this extensive writing have left the air muddled and many American citizens confused as to the proper procedure for soldiers when captured.

In view of the fact that the ground mission of the Army is to close and destroy the enemy, it seems that the time is past due for the Army to take a firm stand and enunciate the policies to be followed in the indoctrination of all Army troops. It is indeed gratifying to learn that the Army has prepared regulations applicable to all Army personnel, thus providing a basis for indoctrination by all units.

The policy requires, without exception or qualification, the utmost resistance to the enemy to the best of the soldier's ability, to resist or evade capture, to seek escape if captured and to refrain from aiding the enemy if he becomes a prisoner of war. Further, for definitive purposes a soldier is any member of the Army regardless of rank. Separation from one's unit or capture by the enemy does not alter the duty of the soldier. His duty is still to the Army and his Country.

If a soldier is captured, despite his efforts to resist, he must give no more information than his name, rank, serial number and date of birth. He never surrenders; to inculcate this thought in the minds of all U. S. Army personnel should be the immediate aim of all combat commanders. To give any other information than what is authorized might well jeopardize the life of his comrades. Conceivably this can mushroom into the actual losing of the war. It can well be the modern version of Franklin's adage: "For want of a nail the shoe was lost. . . ."

Undoubtedly there are many pros and cons to this policy. There are many who will say that it is undemocratic to enforce such strong action on our soldiers. One must remember, however, that in time of war it is the survival of the fittest. It is our democratic way of life against our potential enemy. If we believe in our democratic way of living; if we believe that we are right, then we should be willing to fight for those truths and those ideals, so that our families and our children can be brought up in the American way. If we are not willing to do this we do not deserve our so highly treasured heritage.

Getting to our immediate problem—how are we best to accomplish the mission of indoctrinating the Army with these thoughts? First, we must increase our efforts in combat training, develop military discipline and continue to raise our *esprit de corps.* Secondly, we must intensify our efforts by indoctrinating each and every individual in methods to resist capture, how to escape, evade and survive if captured. Third, we must become thoroughly familiar with procedures if captured and unable to get away. Fourth, we must make every effort to increase the will to resist through an intensive study of American democracy versus the Communist ideologies. Knowledge of *both* is necessary to understand our way of life and why it is worth defending to death if necessary. Fifth, an intensification in the inculcating of religious motivations will serve to fortify the individual with weapons of faith and courage under undue duress. Sixth, intensive training to reinforce physical and mental endurance. Last but not least, the individual must know his right if he is captured, as pertains to international and military law.

In return for these demands your Government will continue to make every effort to free you if captured or assist you in your escape efforts.

Yes, despite the situation, you are a soldier of the U. S. Army. As long as you keep faith with your Government your chances of survival are enhanced and it is still *name, rank, serial number,* and *date of birth.*

FROM THESE PAGES

65 Years Ago

On the field of battle, the cavalry has, I believe, at least as large a scope of usefulness as it ever had, though its use will differ from that of cavalry of the past. The cavalry divisions will mainly be on the flanks of the general line, as before, ready to repel attacks of hostile cavalry or to make attacks themselves, should the inefficiency of the opposing cavalry, or unexpected phases of the action, enable them to gain by surprise a position on the flank of the enemy's line. Anything like a decisive use of cavalry in this manner in future battles will probably be exceedingly rare. But there are other uses for cavalry on the field. If armed and trained properly, its mobility would enable it to be moved quickly to sorely-pressed points, where its firing power would enable it to reinforce the line of battle. Its power as a reserve will thus be much greater than formerly. Cavalry should not, however, be thus used, except in cases of the greatest emergency. Infantry, if at hand, should always be used; for its power in the firing-line will be at least one-fourth greater than that of the same number of cavalry, and the latter is too costly and too urgently needed for its strategical uses to be needlessly used in the line of battle. It is only, I repeat, where the emergency is such as to justify subjecting cavalry to heavy losses that it should be used in this manner.

Discussions of American Practice and Foreign Theory

Lieutenant Arthur L. Wagner
Sixth Infantry

50 Years Ago

Until the latter half of the nineteenth century it was the usual practice to form a large part of the artillery and cavalry into reserves, which were held in rear of the army and under the immediate command of the general commanding. This frequently resulted in withholding just that much cavalry and artillery from the fight, and history contains many instances of lost opportunities due to the impossibility of getting these reserves into action in time to be of any use. These reserves have now practically disappeared. The cavalry has found its proper place in front of the army instead of in the rear, and the artillery is gradually moving up to the line of battle; the artillery reserve gave way to the corps artillery, which is in effect but a smaller reserve, and this in turn is about to be absorbed into the divisions.

Following the developments of the War of the Rebellion and the Franco-Prussian War, it is now generally recognized that the most advantageous use of cavalry is in screening the movements of our own army and gaining intelligence of the enemy. To do this effectively, the cavalry must operate well in advance of the main body, and its movements will, to a great extent, be regulated by those of the enemy. It must therefore be independent. These considerations lead to but one conclusion: the principal part of cavalry must be organized into independent bodies under their own leaders, only so much cavalry being assigned to the Infantry divisions as is necessary for their immediate security.

The Organization of an Army

Captain John P. Ryan
Sixth Cavalry

25 Years Ago

In reading of the tactics appropriate to such a fight we are apt to find ourselves enmeshed in a web of strange words, such as the "Pivot of Maneuver," "The Mass of Maneuver," etc. If instead of this we describe the tactics appropriate by saying: "Grab the enemy by the nose and kick him in the pants," we sacrifice purity to precision but we express the idea.

Cavalry tries to do just this. It grabs the hostile nose and tries to hold it by a violent and noisy head-on attack, using its automatic weapons and some dismounted troopers; while with most of its force mounted, it moves rapidly to a place from which the pant attack can be made with vigor and by surprise. We have dismounted part of our force to hold the enemy and have sent the rest off mounted to gain a position in rear from which they may attack.

If the enemy learns what is going on in time to deploy an effective, unshaken firing line against the turning movement the attacker has the choice of either repeating the nose and pant attack by dismounting a portion of his own force to grab the new nose and again turning with the rest, or to risk the fire and charge home.

Motorization and Mechanization in the Cavalry

Major George S. Patton
Cavalry

10 Years Ago

Coming to the December offensive in the so-called bulge, the marshal let a flicker of a smile creep over his otherwise impassive poker face when I said it was known in America as the von Rundstedt offensive.

"Somebody must always take the rap and stand the consequences," he commented. Then resuming in a serious tone, he explained "the purpose of the winter offensive was to relieve by counterattack the strong pressure of the American and British forces in the Aachen area and heading for the Ruhr. Our objective was to throw the Allied troops back again over the Meuse and seize Liege. Actually the forces under von Model got within 5 kilometers (3 miles) of the Meuse.

"We succeeded in surprising you, but our reinforcements had to be brought up without the aid of railways, many even on foot. Patton could conduct his skilful counteroffensive with complete mobility."

The bulge offensive was Germany's last chance, and von Rundstedt declared he "said so in an order of the day. That I was right may be seen from the fact that when the Russian offensive began we had to shift all our mobile equipment to the east." * * * "When one fights defensively with weak forces against a strong enemy who can pick a weak point, there is only one chance left—break through by surprise."

Von Rundstedt on German Defeat

Louis P. Lochner

CARDED

U. S. Army

TRAINING TODAY

Today's training must be more than just getting close to nuclear explosions. It must meet the requirements of tomorrow's battlefield. We must make sure we train for the correct things, and with the correct approach.

by

BRIGADIER GENERAL LOUIS V. HIGHTOWER

TEN years ago, the only people who were intimately close to an actual atomic explosion were those at Nagasaki and Hiroshima. This month U. S. Army troops will wait on the periphery of an atomic bomb and after its explosion they will ride through the blast area in M59 personnel carriers and tanks to tactically "exploit" the explosion. Under the current series of atomic tests at Desert Rock about 9000 men will have witnessed the explosions—some of them from only 2500 yards from ground zero! Today, the Army is not thinking in terms of *mere survivors,* but *training* to develop *fighting* survivors and to exploit atomic blasts. In all maneuvers, CPXs and war games the Army is tactically applying atomic weapons—on both sides. For realism in the actual tactical exercises and maneuvers, the Army has its own specially manufactured atomic explosion simulator—a device that produces blast, and a mushroom cloud that is visible up to 5000 yards.

But today's training must be more than just getting close to nuclear explosions at Desert Rock. It must meet the requirements of tomorrow's battlefield. We must make sure we train for the correct things, and with the correct approach. It is well to remember that some of the finest, strongest and most perfect suits of medieval armor were made after the advent of gunpowder on the battlefield. These suits were streamlined in a series of sloping surfaces and designed to deflect bullets as well as lances. Continental knights trained hard in these—but were they training for the correct thing?

The 1,200 French knights who were massacred[1] by British longbows in the Battle of Crecy in the year 1346 had trained well, but they had trained for the wrong type of warfare. The French Army had failed to keep pace with the new form of offense. Furthermore, this was the century of plate armor, and cavalry was losing its mobility, in consequence, to its overloading for protection. It was a century of changing military trends.

So it is that we can train, and train hard, and yet direct our efforts toward the wrong type of warfare. The Army does not intend to do this, and for that reason we are conducting a continuing series of organizational and tactical tests designed to shape the Army for more effective use in atomic warfare. It must also be remembered that the U. S. Army must be prepared to fight in both atomic war and in limited or peripheral conflicts.

In early 1954, Lt. Gen. James M. Gavin, then commanding the U. S. VII Corps in Europe, directed that an atomic war game be conducted. Several months of intensive work by the VII Corps and divisional staff laid the foundation for this now historic war game. It is historic and significant because it was from this war game that the cellular battle-group concept for atomic warfare was first conceived and applied. Furthermore, the existing Soviet order of battle then in Europe, was applied as the aggressor force against Allied units in this war game, the results of which were satisfying. This war game, BATTLE MACE, became the basis for a VII Corps maneuver, WEST WIND, which was conducted last fall. Atomic weapons were utilized by both sides and the results of these two exercises have added materially to our knowledge and progress.

These and other Army efforts provided the foundation for additional tests. Next came Exercises FOLLOW ME and BLUE BOLT in the United States.

Organizational and functional concepts of the infantry and armored divisions were tested during these Exercises held this past winter in the Fort Benning and Fort Hood areas.

The objective of the tests was to develop organizations which would be more mobile and flexible; to make maximum utilization of technological improvements; and to obtain, wherever possible, a more favorable combat potential-to-manpower ratio.

Exercise SAGE BRUSH is planned for 1955. It is to be a large-scale joint training exercise of free maneuver in which the aggressor has numerical superiority. Again atomic weapons will be played by both sides. Also, within SAGE BRUSH the ATFA (Army Test Field Army) combat sup-

U. S. Army

Realistic Training.

port and service support concepts at Corps and Army level will be tested. In all, there are 17 troop tests scheduled within SAGE BRUSH.

LOGEX 55—a logistical CPX—is also scheduled within this calendar year at Fort Lee, Virginia. This Exercise is one of a series conducted annually over the past several years. It is a means of training the students of the advanced classes of our technical and administrative schools in high level staff planning and operations for logistical support of an Army in an active theater. The LOGEX Exercises have become an integral part of the curricula of the T&A schools and considerable classroom instruction is devoted to preparing for the Exercise.

Today's Active Army Training

This is no longer the Army of just riflemen, cannoneers, cooks and clerks alone. The artillery gunner of World War II, while he might have served any one of several caliber weapons, must now specialize to serve:

1. the 280mm atomic cannon
2. the HONEST JOHN rocket
3. the NIKE guided missile
4. the Skysweeper AA gun
5. the CORPORAL guided missile
6. or any one of several types of SP artillery weapons.

Even the mortar battalion has its own radar.

The turret of an M48 tank is almost as laden with dials, instruments, devices and switches as a jet fighter plane.

It takes 42 consecutive weeks of school training to turn out a qualified guided missile fire control maintenance specialist for NIKE.

Today, the Army's Antiaircraft defense of the United States is growing steadily. Each year more NIKE battalions are being activated.

In addition, CORPORAL battalions are being created. The Army is training thousands of men and officers on these and other new weapons.

In between newspaper mention of our maneuvers you will see periodic accounts of basic training. However, within these two extremes lies *unit training* which is relatively unpublicized, yet it is *this* training that welds the combat teams into effective fighting forces. It is continuing daily in all TO&E units from Europe to Panama to Alaska and the Far East.

Courier-Journal

Team Training.

All combat units in Europe undergo monthly alerts during which they are actually in the field within a few hours of the alert call. Battalions are required to completely clear their kasernes within two hours. They carry, at *all* times, the basic load of live ammunition, fuel, and rations. Between battalion exercises, CPXs, and maneuvers, these combat units spend a large portion of each year in the field. The CPXs run in regular cycle the year round. They are classified—sometimes highly so. Thus, you read little about this training in the press.

Basic training represents a large portion of our effort in the Continental U. S. The installations within which it is conducted are accessible, so it often receives a large share of press coverage.

However, I redirect your attention to *unit training*, the culmination of which is the annual field test of every battalion. Prior to this test, each platoon, company and battery is similarly tested.

These tests are gruelling tactical exercises that see battalion, company, and platoon commanders red-eyed from lack of sleep—and the tank crews, infantry squads, and gun crews no different as a result of three tactical days and two tactical nights with little or no rest. The aggressors are real and realism is played to the hilt. On the final day of these tests, the battalion—be it tank or infantry—unleashes its full firepower with live ammunition. Remember that for two days and two nights the men of the battalion have been maneuvering against actual aggressors. The men are dead tired. It takes leadership, and force and persuasion within this leadership, to urge men onward and keep them awake and alert by the time the live firing phase comes. The aggressor is simulated here because the battalion now takes actual objec-

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BRIGADIER GENERAL LOUIS V. HIGHTOWER, a 1931 graduate of USMA, served with the 1st Armored Division during World War II. He was awarded the DSC for gallantry in action in North Africa. Since the war he has held several important posts in the United States and Argentina. Prior to his present assignment he was in Korea where he was chief of Staff of the 2d Infantry Division and later commanded an Infantry regiment. He is presently assigned as the Chief of the Organization and Training Division, G3, Department of the Army.

tives under live fire. Every weapon must shoot—and fire accurately because living men of the battalion are forward, on the flanks and under this fire. This realism begins with air-dropped napalm on the objective followed by bombs, and then artillery fire under which dismounted and mounted men move forward. This final period of test is also training. It is a morning for precision. If the battalion fails it usually means the relief of a battalion commander, and always a complete retest of the battalion within a few months.

This will give you some index to today's training which is aimed at complete readiness for combat.

Training Realism

The best evidence of the Army's effort to place realism into training is the activity current this month at Desert Rock.

In this atomic maneuver there is a unit of 2800 officers and men providing logistical support and participating in the exercise. In addition there is an observer group of 1000 more men selected from various Army areas. Packets of 650 from various units are also witnessing the shots and then are returning to home stations. Then there are the test units, totalling 2200, who make up the armored task force, man the infantry communications system, artillery observer stations.

By crouching in trenches in the forward area when atomic shots are fired, by examining matériel exposed to atomic blasts, these military men learn the capabilities and limitation of nuclear devices. The greatest fear—that of the unknown—is whipped.

As these soldiers return to their own units throughout the nation, the information which they have gained is passed on to their fellow soldiers both at scheduled troop information classes and in barracks bull sessions.

Realism takes other forms. There is the matter of physical training which is carried out with constant regularity. Rifle marksmanship is now receiving much stronger emphasis than at any time since World War II.

Recently the Army and the Navy developed a new electrically controlled pop-up target. You can shoot this silhouette target "dead," that is, it will fall over when struck by one bullet, and it will not blow over from wind. It is light, portable enough to be carried by one man, and it can record hits up to 600 per minute on the small control panel on the firing line. This target can be automatically raised from the firing line. It means that instead of using ropes and pulleys which are for stationary courses, you can place these targets any place you possess an impact area. It is a new way of making the enemy come to life, and then "die" in the process of field musketry.

Other modern devices are under development so as to add realism to training.

The Present Period of Transition

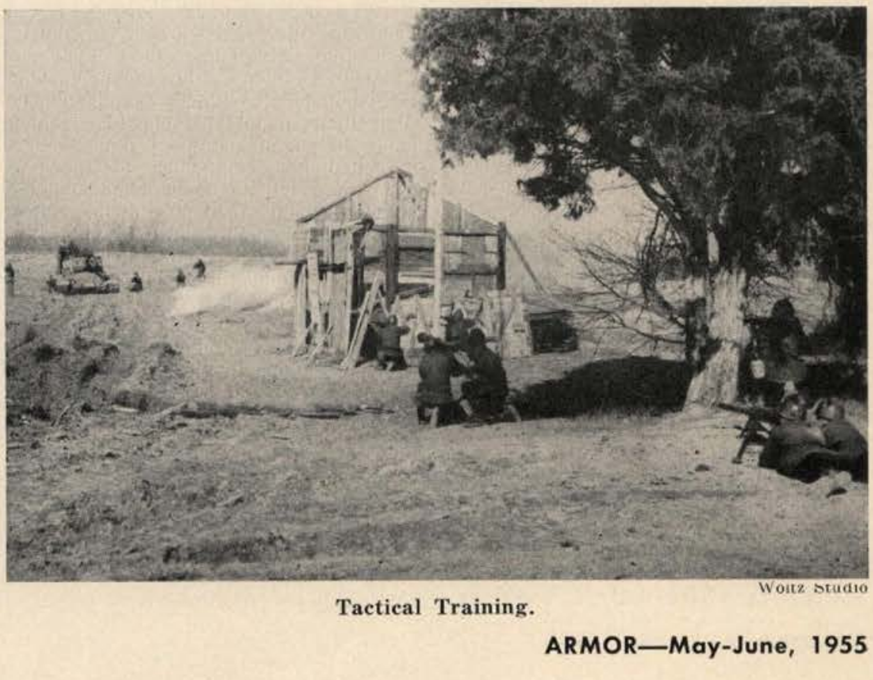
The Army is in a great period of transition. The Army's current tests and search for the proper tactics, techniques and organization with which to wage and win atomic conflict, represent perhaps the greatest challenge our Army has yet faced in peacetime. This is also a century of changing military trends. It is a challenge to every officer, regular or reserve; and our combined effort as well as our minds must be openly directed toward the future, and not dwell on the past.

In the first days of man's primitive warfare, troops fought in masses, and the victory was won by those bravest, strongest or most numerous. Later it was discovered that well-trained men could defeat larger numbers of poorly trained men—so training became a regular part of the military profession.

As training and warfare progressed, men discovered that the better armed men should be joined in formations. Then it was learned that the same formations would not suit for different arms. The swords did not fit into formations where lances were used, and the men with bows and arrows needed open space for open skirmishing order. When horses were first introduced to the early Egyptian army they were not used as cavalry, but instead were harnessed to chariots. Assyrian armies consisted of both horse and foot, but the horse was also used with the chariot. Man had to experience, then search, and then experiment to evolve the concept of true cavalry. Finally the chariot gave way to cavalry usage of horses. But the solutions came slowly. It required considerable experience to learn, and apply in training, that the new-found cavalry had more shock action when charging boot to boot. It required ingenuity to increase cavalry effectiveness: the stirrup was finally invented 550 AD—long after Alexander and Hannibal.

So we see that even given the instrument of the horse—it was a long period until men refined and perfected the military application of the instrument.

This era of our generation has provided us with many new instruments. The inventors have performed, but the task of those of us in uniform is just beginning. We must study, organize, and act to provide a suitable



Woltz Studio

Tactical Training.

foundation upon which to project future training. Your ideas are sought and you are enjoined to look ahead. Above all, it will behoove you to study so as to be professionally equipped for the future.

There is an enormous amount of fiction written about how the advent of new and more powerful weapons and types of equipment have rendered the retention of ground forces expensive anachronisms in future wars. This type of thought strikes responsive chords in the average American. We would all like a "cheap substitute" in war. But the war roads of history have been littered with millions of machines abandoned by men who no longer had the will to fight. When the will left men, men left the machines. There has yet to be invented, the machine that has courage or determination. Man is, and always will be, the final determinant in war. While machines are useful and essential, they can never substitute for the soldier—the soldier we must train.

The precise reorganization necessary for atomic war has not yet been determined. However, we do know that the organizational structure must lend itself readily to dispersion in defense and rapid exploitation of atomic weapons in the attack. The structures within the division, particularly, should be cellular like so that any one component can suffer heavy damage without the integrity and effectiveness of the division being critically affected. This means a trend toward smaller, highly mobile battle-groups of combined arms, with a high communication capability, air transportable, possessed of tremendous firepower, and capable of tactical mobility and speed. The helicopter and the convertiplane will serve to advance and support units by vertical envelopment and air LOCs. New logistical as well as tactical concepts and techniques must be developed and tested. The actual combat zone will have increased depth, and a military vacuum will lie between that zone and the very distant base areas which provide logistical support.

Our Army organization must have the capability of being at the time and place when needed, and the flexibility and mobility to move to another area of decision when required.

U. S. Army

Round-the-clock Training.

When The Army Must Divide And Multiply

Should the moment of sudden and full mobilization arrive, you will find thrust upon your leadership some rather large and challenging problems—the most immediate and pressing of which will be training—training within short periods of time. The relative luxury of time to train that we enjoyed in World War II, will probably never be afforded us again.

This will demand that you possess up-to-date military knowledge—a foundation upon which to project your leadership and skill into immediate action.

Let us not, as leaders, be overconfident in our men unless we give them excellent, extensive, and intensive training. The American is self confident and enthusiastic. He was enthusiastic as he marched out from Washington for what was to be the BATTLE OF BULL RUN in 1861. But he was also untrained and undisciplined. It took him two days to march 15 miles! Of the 30,000 troops allotted for McDowell's use only 800 were trained troops.[2] The journey of these untrained men left a wake of discarded blankets, blouses and rations. Men left the ranks at will, got water and fruit as they chose, and meandered along the way. The testimony of the subsequent debacle and defeat of this Union Army should be remembered as a permanent lesson in the lack of training.

Today, the training task is much more complex. Beyond the physical, technical, and manual aspects of training there lies the urgent and continuing need to train and steel men's minds for the potential impact of enemy atomic weapons and enemy psychological methods, so that active fighting men and not mere shocked survivors will emerge.

You are leaders. Your position is established—that is, legally. But your position goes beyond the commissions you hold—you have proven your ability in the combat of real warfare. Now, there is incumbent upon you as well as upon your colleagues in regular service, the necessity to reinforce your professional ability by professional study. Should this nation require your active service leadership again, it will need it badly and in the numbers and quality that you can present.

We possess no machines or weapon that will provide professional and inspiring leadership.

The nation's confidence rests heavily upon you in the event of emergency.

These remarks are based on a speech given by the author to the Reserve Officers in the Washington, D. C. area.

[1] Other casualties were: 1,400 gentlemen, 4,000 men-at-arms, 30,000 inferior soldiers. (Gen. W. A. Mitchell World's Military History, Military Service Pub. Co. 1931.)

[2] Ganoe, "The History of the United States Army." Appleton-Century Co., 1942, p. 256.

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THE DESIGNING OF NEW DIVISIONS FOR OUR ARMY

by LIEUTENANT GENERAL BRUCE C. CLARKE

THE fighting had hardly stopped in 1945 when the War Department set up Theater Boards to reduce to writing, lessons learned during World War II and to make recommendations for changes in TO&Es. These Board reports were available to the War Department early in 1946. At that time, General Eisenhower, then the Chief of Staff, directed the Chief, Army Ground Forces to draw up new divisional organizations which would feature:

1. "Type" Divisions of strength not over 15,000—Infantry, Armored and Airborne—with the latter being practically an Infantry Division modified as required by air transport and aerial delivery requirements.
2. Organic assignment of those Arms and Service elements that were habitually needed to balance the division self-contained combined-arms team in the quantity required all the time.

The Chief, Army Ground Forces, then held conferences on organization and equipment at Forts Benning, Sill and Knox, in order to secure more ideas to assist in the project.

It soon became apparent that an Armored Division could be produced under these criteria, but that an Infantry Division would require 18,000 men if the basic organization of 3 Infantry Regiments of 3 battalions each was to be retained. However, to stay with this strength and maintain the traditional organization, the rifle squad had to be reduced from 12 to 9 men. General Eisenhower later approved the plan for an Infantry Division ceiling of about 18,000.

These new Infantry, Armored and Airborne Divisions now have been in being about 7 or 8 years and generally have achieved a high degree of approval. In connection with the Armored Division and with the new proposed Divisions, it is interesting to note the Armored Conference of 1946 came up with a tie vote as to whether the Division would be a 3 regimental structure or a combat command-separate battalion organization. General Devers, then Chief of the Army Ground Forces, decided in favor of the latter concept. By this decision the present Armored Division and the concept of its tactical employment were advanced far ahead of the field.

The experience of the Korean War and the effect of possible tactical employment of atomic and thermonuclear weapons on warfare made it most prudent that the Department of the Army study again our divisional organizations and tailor new ones to keep abreast of the developments in weapons and tactics and the requirements of future type wars. The "type" divisions are being tested at this time at Fort Benning, Georgia, and at Fort Hood, Texas. Some of the considerations involved in these tests are discussed in the succeeding paragraphs.

It should be of interest to note that shortly after the termination of the Korean conflict, the design and test of a new ROK Infantry Division was directed by General Maxwell D. Taylor, with a view toward modernizing the ROK Army and providing for increased combat effectiveness. This development and testing program, which is still going on, has revealed many problems which closely parallel those faced by our own staffs in planning and initiating changes in the divisional structure of the United States Army.

All too often, when organizational changes are proposed, there are varying degrees of reluctance to accept changes. This was true in the ROK Army. In some cases, this reluctance is the result of failure on the part of individuals to visualize properly future employment of the organizations; in other cases, a departure from the old way of doing things is not desired. At such times, it is important that all of us approach the problem with an objective point of view—

LIEUTENANT GENERAL BRUCE C. CLARKE is presently the Commanding General of the United States Army in the Pacific.

FOREWORD

By General Jacob L. Devers (Retired)

General Clarke is particularly well qualified to discuss this important problem because of his long and varied experience. He had an outstanding and successful influence on the organization and training of the 4th Armored Division in the capacity of Commanding Officer of the Engineer Battalion, and then as Chief of Staff of the Division. As Commanding Officer of one of its Combat Commands, he fought with the 4th Armored Division from the beginning of its combat service until its arrival on the Saar.

He was then transferred to the 7th Armored Division as Commanding General of Combat Command "B," which held the vital corner at St. Vith during the Battle of the Bulge. From 1945 to 1949, he was Deputy and Chief, Plans Section, Army Ground Forces; Deputy and Chief of G3 Section, Army Ground Forces; and Assistant Commandant of The Armored School. In these capacities he worked with the then new organizations through the design, TO&E, organization and the school problem, and Field Manual stages. When a new modern division for the ROK Army was proposed for testing in 1953, General Clarke was placed in charge of that project.

Known as an exceptional leader of men, General Clarke is a sound organizer and planner—with the vision, the imagination, the force and the courage to execute good plans victoriously.

what won in the past may lose in the future.

The mere modification of an existing organization would be insufficient advancement to keep pace with the current trend in new developments. We should let our imagination go beyond that in an effort to arrive at an organization that will not be out of date before it is tested. A new division should incorporate all the proven principles of past organizations and discard those that have been disproven. The separate unit, "tailored for the mission," basis of the armored division appears to offer the best framework. We must visualize for both tactical and strategic movement an increasing degree of dependence upon air transport, because of the need for greater mobility and because of the vulnerability of ports and land transport facilities. This, of course, points to lighter equipment and reduced logistical requirements. In any event, considering the time it takes to finalize a new organization, we should be as far-sighted and imaginative as we can from the outset.

Let us consider some aspects of the future divisional structure. Since the divisionl organization is so basic, it is important that many broad considerations be weighed in the initial design of a new division. These include:

1. General organizational and command structure of the division and its component parts.
2. The administrative structure and procedures such as those for handling supplies, replacements, maintenance, transportation, evacuation, within and above the division.
3. Concepts for the tactical organization and employment of the division and its major subordinate commands in the various operations the division may be expected to undertake.
4. The organization and composition of the Corps and Field Army in which the new division is to function—to include non-divisional combat and service support expected to be available to the division—administrative procedures to be followed, and the part the division is to play in the Corps and Army team. Consideration should be given to the possible use of the division by itself and augmentation required when so used.
5. The selection of weapons for the subordinate units of the Division should be very carefully studied. The weapons should be light in weight and consist of both direct and indirect firing types. Certain weapons selected for the combat elements should be anti-armor in nature. The types of weapons should be reduced to the

minimum, thus simplifying the logistics and resupply ammunition problems.

6. Consideration should be given to a re-analysis of the organic aviation for the division. There should be Army aviation organic to the unit, comprising both light fixed-wing aircraft and helicopter types suitable for reconnaissance, command liaison, movement of assault troops and transportation of supplies.

It is obvious that the primary considerations in the new reorganization of the U.S. divisions should include such essentials as increased strategic mobility, flexibility, agility, and tactical mobility; broader frontages; greater dispersion; greater depths; a more elastic defense and a more sustained offense. We must be able to disperse and mass quickly. However, if we are to take advantage of new weapons and equipment, a reorganization of the tactical units alone is insufficient. We must scrutinize our concepts of command and staff organization, procedures, and techniques; and adjust them to handle effectively the new tactical organization and to obtain maximum return from the manpower resources available to the Army.

Despite continued improvements in our Army during the past decade, we still retain a tremendous amount of "command and staff inertia." Our command and staff procedure and techniques have not kept pace with the increased mobility of divisions and smaller units. Experiences in Korea served to enhance this undesirable condition rather than to eliminate it. Higher headquarters have become larger and larger, consequently slower and slower to act and react. Undoubtedly, this situation has been recognized, but continual investigation of the following is mandatory:

1. Improved communications, featuring greater use of radio, more rapid procedures for handling messages, and the development of simple, more usable field codes.
2. Streamlining of orders eliminating overlays and placing emphasis on mission type orders.
3. Improvement of collection and collation techniques, and dissemination of timely, usable intelligence to battalion level.
4. Reduction of time lag in furnishing replacements to the basic fighting units.
5. More centralized control of supply and transportation.
6. Better organizational relationship of staff members at division level and below in order to save time and to give the commander better control and supervision, particularly in fluid and fast-moving situations.
7. A simplified and more effective system of reports from battalion to army in which non-essentials and duplications are eliminated. The procedures used should not clog operational communications.
8. One of the considerations for the planners of a new divisional structure should be that of insuring a constant chain of command. In the event that the use of mass destruction weapons occurs, it is necessary that emphasis be placed on the prompt assumption of command by officers previously designated several echelons in depth.
9. The safety of the individual combat soldier is becoming of increasing importance in our thinking. We must insure that adequate protective equipment is stressed. We must insure that his equipment includes an item which will help the individual combat soldier to dig in, since protection against a mass destruction weapon is much greater when troops are located below the surface of the earth. Shaped charges, simple augers, or foxhole blasters must be developed.

Another trend in organizations which requires investigation is the decrease in the ratio of combat to service or support personnel. In nearly every unit and headquarters, except the rifle squad and tank crew, there has been a tendency to increase support personnel to insure a safety factor to handle "the unusual or peaks." Our manpower resources will not permit this cushion in another global conflict. A study in Korea disclosed the percentage of division "foxhole" strength to be as shown in *Figure* 1.

Regardless of new developments in weapons and equipment or the type of war to be fought, the shortage of riflemen represents a major problem to the commander—not especially in terms of firepower, but in terms of ability to occupy and hold terrain and to impose our will on the enemy.

In Korea, the U.S. divisions were augmented by KATUSAs (Korean Augmentation to U.S. Army) and U.N. Battalions, and support was furnished by Korean Service Corps personnel. This augmentation increased materially the net "foxhole" strength of our divisions. In all probability, similar augmentation will be unavailable in other areas, especially if a future conflict assumes larger proportions. It therefore follows that the optimum sizes of the Infantry squad, platoon, company and battalion are the first basic determinations to be made in this program. It will be interesting to note that in testing the new ROK Divisions, 72 battalion problems were run, using 5 different types of battalions, before the final battalion organization was selected.

In streamlining our division organization along the lines mentioned above and preparing them for future action, certain aspects of training must be stressed; therefore, careful consideration must be given the following:

1. The battlefield will be of greater depth and width, thus precluding the establishment of an

Type of Unit	**"Foxhole Strength"**
U. S. Infantry Division (less AAA and tanks—in order to compare with ROK Division, which has neither)	23%
Present ROK Division	28%
Proposed ROK Division	44%

Figure 1.

"impervious" line. Infiltration, therefore, will be an ever-present threat to headquarters, artillery, and supply installations. Thorough plans for local security at all echelons must be habitual.

2. All ranks must be mobile-minded. They must constantly preach and practice mobility.

3. The will to close with the enemy must be fostered and maintained. The growing tendency to depend entirely on supporting fires to defeat the enemy must be curtailed.

4. Units must be permitted latitude and flexibility through the issuance of mission-type orders.

5. There must be more training in combined arms teamwork at lower echelons.

6. More emphasis must be given to supply and maintenance. In that connection, excessive use of artillery and mortar ammunition must be controlled.

7. The practice of laying vast networks of telephone wire merely serves to inhibit mobility and flexibility, creates unit inertia, and constitutes a needless expense. Use of the radio must be habitual and not considered an emergency measure. It follows, therefore, that the use of simple field codes and proper radio procedures and discipline must be habitual.

8. The MLR concept must be replaced by an offensive-defensive concept. Defense must be in depth, and it must be elastic, capable of rolling with the punches—it must be offensive in nature. Feints and counter-thrusts must be habitual in defensive combat. Strategic requirements may force local retreats to the extent of breaking contact. This will require judicious use of reconnaissance elements.

9. The technique of air-ground coordination must be improved, particularly in the light of high performance aircraft and new communication requirements. Air Control Team equipment must be reduced to a minimum consistent with efficient operations, and means sought to reduce the time lag between the initial request for support and the appearance of aircraft in the target area. Naturally, this must be done in coordination with the Air Force.

10. Airborne units must become habitual members of the ground team. Regular ground elements should be thoroughly trained in working with them.

11. Once momentum of the offense is attained, a unit must be capable of maintaining it and exerting pressure of pursuit. There is room for considerable development in this field. The constant threat of special weapon attacks on our troops makes mandatory constant practice in dispersion, concealment and camouflage techniques.

12. Headquarters must be split into and function normally in two separated elements, each capable of carrying on for a limited period in an emergency. Increase of personnel for this purpose should be avoided.

13. Reconnaissance must be emphasized, and a concerted effort made to provide timely information to units below division level. The Corps and Army must have adequate and well-trained reconnaissance units.

14. More emphasis must be placed on individual training with a view toward developing initiative and resourcefulness in all ranks. Discipline must be developed along uniform lines throughout the division and maintained to a high degree.

15. All echelons within the divisional structure should stress the tactical employment of mass destruction weapons. We must learn to take advantage of the tremendous confusion and shock effect which will result from the use of these weapons. Not only must we stress in training the tactical employment of mass destruction weapons by our troops both in offense and defense, but we must prepare our troops physically, mentally, and psychologically against the time when the enemy might use such weapons against us.

16. Control and operation of widely separated, semi-independent troop units must be mastered. The frequent shifting of battalion-size units from one command to another will require greater centralization of control at divisional level. Troop units must be massed for offensive action in shorter periods of time than heretofore so as to offer the enemy only a fleeting lucrative target. Once an objective has been taken, troops must be taught to deploy immediately so as to preclude the offering of a mass destruction weapon target. The foregoing conditions make it mandatory that logistical elements be flexible and sufficiently mobile to properly support front line troops.

When the composition of the new divisions is determined, the program is then only well started. Some of the many things to be accomplished include:

1. Revision of the composition of the Type Field Army.
2. Establishment of command and support relationships in the Corps and Army.
3. Development of new TO&Es.
4. Re-examination of existing development programs to determine validity of items and existing essential, military characteristics.
5. Examination of existing procurement programs.
6. Preparation of new staff data tables.
7. Modification of the service schools curricula.
8. Preparation of new Field Manuals and school texts.
9. Preparation of new problems at service schools.
10. Reorganization of Active Army, National Guard and Reserve components.
11. Preparation of new training programs, schedules and subject schedules.

The enormity of the program should be apparent to all. In addition to the points enumerated above, due consideration must be given to the effect of these programs on our continued efforts to develop the armies of our friends. Particular reference is made to those nations which follow very closely U. S. organization, doctrine and techniques. Also, it should be apparent that it will take several years to complete the program, and that most everyone in the Army will be affected in some way. Because of these, all should be extremely interested in the tests of new divisions now under way at Fort Benning, Georgia, and at Fort Hood, Texas.

OPERATION MINUTEMAN

Arkansas Air National Guard

Are the Army and Air National Guard alert and ready?

IT was a determination to get the answer to this question that prompted the undertaking of Operation Minuteman, the nationwide test alert of Guard units held in mid-April.

After action reports from the states and territories which participated in the operation were being analyzed in the National Guard Bureau as *ARMOR* was going to press. Reports indicate that the tests in every state were highly successful.

In any analysis, it must be remembered that this was not a test of the combat readiness of the Army National Guard units.

Operation Minuteman was designed to determine how rapidly National Guard units could be assembled at their home stations and made ready to move out on local security or emergency type missions. The number of Guardsmen who responded to the alert call is considered important.

On the basis of reports phoned into the operations room of the National Guard Bureau from just a few states the night of the alert, Major General Edgar C. Erickson, Chief of the National Guard Bureau, estimated that 82.1% of the officers and enlisted men of Army and Air Guard units participating in the test were assembled by the end of the second hour. Figures in the after action reports show that the estimate was only .3% off.

The total number recorded as present for duty at the end of the second hour was 318,172, or 82.4% of the strength of the units participating.

These figures are in themselves impressive. They show that the Guard, in the event of a national emergency, could be counted on to assemble rapidly.

What is probably more important is that in most communities in which National Guard units are located, the Guardsmen were equipped and moved out speedily and efficiently on local security missions. Not only did the alert test the operational capabilities of the Guard units in these roles, but it tested also the ability of division, brigade and lower echelon staffs to assemble rapidly and become operational.

The training goal of the National Guard is, of course, combat readiness. Its training program and every training effort is directed toward the accomplishment of that goal. However, in the event of a sneak enemy attack on this nation, the assistance of every military force could well be needed, at least for a time, to assist in emergency type work.

While Operation Minuteman appears to have proved conclusively that the National Guard is ready to serve in such an event, in the opinion of many, the test further proved that National Guard units could be assembled, equipped and made ready to move to training sites, if so directed in a rapid mobilization, in a considerably shorter period of time than heretofore planned on. The test alert was indeed worthwhile.

On the 20th of April, when "Operation Minuteman" was put into effect, many of our National Guard units determined their state of readiness in an emergency. Undoubtedly the unit commanders discovered weaknesses which were corrected on the spot and which could prevent a disaster in the future. Pictured here are representative groups from various States across the Nation.

Dallas *Morning News*

Georgia National Guard

Tennessee National Guard

California Air National Guard

Newark News

Florida National Guard

Missouri National Guard

New York *Daily News*

Robert Osie Bugg
Alabama Poly. Institute

John R. Underwood
Clemson College

Victor J. Bissonnette
Massachusetts University

Hugh H. Sharp III
New Mexico Institute

Samuel C. Ferguson
Norwich University

Outstanding Senior 1955 ROTC Cadets

George Rountree III
University of Arizona

ARMOR

Since 1952 the United States Armor Association has given recognition to the outstanding senior cadet in the Armor Reserve Officers Training Corps at those institutions where an Armor course is in operation.

Now that graduation time is upon us, it is with great pleasure that we salute those gentlemen who have achieved the honor for outstanding performance during their past four years at their respective colleges.

The number of institutions teaching an Armor course has decreased this past year and more will resort to the General Military Science Course by next Fall. With the increased interest in Armor, we feel that more institutions could instruct in Armor subjects. This would give both reserve components and the regular establishment more company grade officers who are basically schooled in the mobile arm. To instill mobile-mindedness during the formative years is an ideal solution.

The awards, this year, include engraved scrolls signed by the President and the Secretary of the Association, a year's honorary membership, and a package of books. These books are: Patton's *War As I Knew It*, Robinett's *Preparation for Leadership in America*, and Guderian's *Panzer Leader*.

These eleven Distinguished Military Graduates have been tendered appointments as Second Lieutenants in the Regular Army upon graduation. Regardless of their choice of endeavor, be it Regular Army or a civilian occupation with Reserve commissions, we welcome them to the team of combined arms.

To the instructors, officer and NCO, at these institutions, we give a vote of thanks for the job requires many attributes which comprise the statesman, the public relations man and the college professor.

It is hoped that this recognition by the Armor Association will assist the instructors in their endeavors, serve as the start of a military professional library to the recipients and enhance the prestige of Armor at the schools concerned.

We salute you!

Thomas W. Anderson
Oklahoma Military Academy

Cecil Glen Fair, Jr.
Texas A&M College

Eugene R. Fanker
The Ohio State University

Gerald E. McKay
University of Illinois

Macon M. Pettyjohn
Virginia Military Institute

CARDED

GENERAL GEORGE S. PATTON, JR'S

Psychology of
LEADERSHIP

by BRIGADIER GENERAL HARRY H. SEMMES

The Soldier is the Army
No Army is better than its Soldiers

U.S. Army

BATTLE is the symphony of destruction. It is men using weapons to destroy the enemy. Always man, his willingness to sacrifice for the common aim, his urge to fight for this aim, will be the dominant factor in victory. There are not now, and never will be push-button wars. As weapons become more potent, it will take greater courage and steadfastness to use them aggressively, and to withstand the weapons in the hands of the enemy. The culminating factor will be the man behind the gun.

No one understood this principle better than General George Smith Patton, Jr. He knew that war is man and man is war, and that leadership in battle is the most important function of an officer. Men may be so led that they will overcome other men with superior weapons. The finest weapons are just so much hardware in the hands of men who are not trained and inspired to fight.

Patton's whole life was dedicated intelligently and devotedly to the understanding and practice of leadership. His ability to lead reached its zenith in the incredible feats of his Third U. S. Army on the continent of Europe.

He was the tactical ground commander who was most feared by the Germans in World War II. Our high command agreed that he was the outstanding commander of troops in battle at his level.

The urge that makes men fight does not include a hope of gain, for that factor has gone out of the present wars. In the old days, when war was limited to the battlefield, "to the victor belonged the spoils," but there are no spoils left now. It must have been rewarding to be a conquering hero and live on the fat of the land, but the modern victor has to support the vanquished and lend a helping hand to the less fortunate of his allies who have also been impoverished by war. America, in its leadership at the present time, has no sinecure. The fun, pomp, and ceremony have vanished.

However, as always, the main factors that make soldiers fight are intangibles which differ somewhat from country to country though the basic factor is inspiration.

The French, at the time of their greatest achievement, are inspired to fight because of sentiment. The French soldier fights against a background in which there is a faint sound of the strains of the Marseillaise. The French soldier fights because of emotional inspiration more than any other one factor. He fights for "la gloire," for "la patrie." Whole armies catch this inspiration such as at Verdun in the first World War, and at the stand before Paris in 1914 when the "taxi-cab army" reinforced the French left, turning the scales in the resistance against the invading German First Army.

The British are motivated by somewhat different considerations. The British soldier is a great man to plant his feet and say, "I will not move." He is the rock of Gibraltar and will stand to the death. He proved it during World Wars I and II. This wonderful fighting man always fights best with his back to the wall. It is a national trait—one which we have valued highly in two wars. The Battle of Britain, when the Royal Air Force defeated Goering's attacking Luftwaffe in 1940, will always enshrine this quality in the memory of man. This trait applies to many of Britain's provincial armies—the Australians, New Zealanders and Canadians in particular.

The American fights for somewhat different reasons than either the French or the British. At his best, the American fights for a cause as a principle which he holds dearer than life itself. He likes to identify himself with a unit and service. He likes to help the unit as a team, to win the battle for the sake of his people and his comrades in arms. Whatever may happen to an outfit, the next American in line always takes over and does his very best. He is imaginative and resourceful. He feels an obligation to his buddies and to his outfit; it is a team proposition for the Americans; it is a matter of looking out for those who are fighting with him. Americans can be reduced to but two men and one of them, the one upon whose shoulders the command has fallen, always feels that he is responsible for the other, and must plan so that the team of two can accomplish the most. This is the "buddy spirit," and this is one of the reasons the Americans reach such great heights in combat. This is the spirit that turned the Germans at the Battle of the Bulge. This is the spirit of Valley Forge and of many other occasions when the American soldier refused to admit defeat. This is the Alamo!

TO lead is to develop whatever you have that is yourself. A leader must learn to exaggerate and amplify that which is natural to him. No one can succeed by emulating another's formula. Patton was naturally highly charged and flamboyant. He was always the figure in shining armor on the coal-black charger. That was his style. No one could touch him in the role selected by him—the role which came natural to him, and in which he schooled himself.

Thus one of the great factors in leadership is to learn one's best role and to exaggerate it. Emphasize that which is a natural bent; make it important and it will become recognized by the troops. It will be a trademark of your leadership.

How his leadership produced results is easily seen in the following incident that occurred in the landing made by the Seventh Army under command of General Patton on the southern coast of Sicily in July 1943. Patton's Seventh Army was put ashore at Gela, Licata and Scoglitti. At Licata, an Italian shore battery cut loose at an LST that was carrying some of the 3d Infantry Division and some of the supporting armor from Combat Command A, 2d Armored Division.

The Armor was from the 1st Battalion, 66th Armored Regiment, which was my command. It was a part of Combat Command A and I was on the upper deck of the LST. The range was short and shells from the shore battery had bracketed our LST that lay like a sitting duck less than a mile from shore. In seconds, a United States destroyer, like a bulldog that had been held in leash, charged across the bow of the LST at top speed, throwing plumes of white water higher than the deck and with every available gun blazing, firing over the sights in a duel with the shore battery. It was a very cheering sight for the Armor and Infantry on board the LST. The Italian battery was silenced and the destroyer turned sharply to avoid being beached. The whole action took place in sixty seconds.

This was largely the result of Patton's succinct instructions to the supporting Navy in the landing. "I don't want to hear any vague boom-booms on the horizon." The action of the United States destroyer in valiant support of the landing operation was typical of the high standard of action Patton demanded, and the type of support that our fine Navy was prepared to give at any cost. For in those sixty seconds we knew it was either the shore battery or the destroyer, and the slightest hesitancy on the part of the destroyer would have spelled the end of our LST.

Patton wrote voluminously to crystallize his own thoughts and to fix them in his memory. Between World War I and World War II, Patton wrote his thoughts on "Why Men Fight" in a paper prepared by him dated October 27, 1927.

PATTON analyzed the troops that would fight the wars for the United States. They were in World War II, as he said they would be in this paper written in 1927, young and animated by the desires of the young. Their thoughts were, of course, the thoughts of young men. In none of our wars will we ever have the seasoned men of the old Roman legions. In "Why Men Fight" he wrote:

"The popular expression: 'Soldier Boys' has more truth in it than its poetic originator probably guessed. The fighting ranks of our armies are largely composed of boys, and the simplicity of the life led by men in campaign tends to retain and redevelop their boyish propensities. While the theory that in passing from the germ plasm to the grave we relive in a brief span the whole gamut of our revolutionary existence, may not be wholly tenable, it is none the less certain that the boy is more nearly similar to uncivilized man than is the person of greater age.

"For this reason soldiers respond very readily to the simple emotional stimulants which formerly actuated the race. Of these the most potent was the sex originated desire to appear well, to be a hell of a fellow. We see this desire for self-expression and laudation evinced in the bizarre costumes, antics and haircuts of school and college boys. Putting men in uniform, usually ill-fitting, not only deprives the youth of his power of self-expression, but to a degree hurts his pride by making him look like his associates.

"In the gay uniform given by Napoleon to the Young Guard we find him realizing and profiting by this fact.

"The fortune of many tradesmen was started in 1919 by the sale to returning 'Heroes' of gaudy but unauthorized and meaningless 'Campaign Ribbons,' bought with no intent to deceive but purely to please the ladies.

"Every recurring election or club convention depicts the same blossoming out of the male population in badges and bloomers.

"In the army the ribbon has replaced the knightly spur and belt and at a greatly reduced cost.

"Its possession gives differentiation, distinction, fame. For the privilege of wearing a dime's worth of taffeta, many will do deeds which all the treasures of the Incas were impotent to cause him to attempt.

"In the World War we increased our decorations from one to three, but it was not enough and the parsimony and delay attendant on their distribution took from them much of the effect they were intended to produce. Fearful that one unworthy might be decorated we examined, hesitated and hectored our heroes, utterly forgetful of the fact that a coward dressed as a brave man will change from his cowardice and, in nine cases out of ten, will on the next occasion demonstrate the qualities fortuitously emblazoned on his chest.

"We must have more decorations and we must give them with no niggard hand. The story of the young soldier who on being asked by Napoleon what he desired in recompense for an heroic act said, 'The Legion of Honor, Sire,' and when the Emperor replied, 'My boy, you are over young for such an honor,' again answered, 'Sire, in your service we do not grow old,' is as true as it is tragic. Our men will not grow old. We must exploit their abilities and satisfy their longings to the uttermost during the brief span of their existence. Surely a machine gun nest for an inch of satin is a bargain not to be lightly passed up.

"The frame of mind which places the invariably unsuccessful attempts to delude the enemy above the inspirational influence of a distinctive uniform is to us incomprehensible. If a chasseur's cap could make a Blue Devil out of a peasant, think what a blue feather could make out of our men!

"We know that we will be told that Americans do not care for such things, that the supply problems will be made more difficult, that injustices will be done. To such remarks we reply that the Spirit of the Soldier Boy is ever the same, ever the simple, vain, ingenuous savage soul of youth; that supply difficulties seldom trouble victors, and that war is only resorted to when justice has failed.

"You can rely on punishment, habit and the valor of experience with long service professional armies, such as we shall never have, with amateur armies you must lead by seduction. War may be hell, but for John Doughboy there is a Heaven of suggestion in anticipating what Annie Rooney will say when she sees him in his pink feather and his new medal.

" 'In war,' said the Emperor, 'men are nothing, a man is everything.' All history vindicates this remark."

BEFORE this paper was written, Patton appreciated the importance of decorations. One of the officers of General Patton's World War I 1st Brigade, Tank Corps, was involved in a maneuver near Langres, France, just after the Armistice. A general from headquarters at Chaumont who was watching the maneuver remarked to Patton, who was then a colonel, that this officer was staggering and drunk. Patton replied, "This man isn't drunk; he's wobbly from being hit in the leg at the Argonne. I recommended him for a decoration but some old buzzard at Chaumont Headquarters who never heard a hostile shot, or missed a meal, turned him down." It happened that the General addressed was the one who had disapproved the recommendation, though Patton did not know it at the time. Another officer at the maneuver told Patton that this was the case. Patton said he was glad he had said it.

Patton in "Why Men Fight" advocates that all promotions after the initiation of a war be based on an "aristocracy of valor." He points out all aristocracy originated with valor. As World War II progressed, more and more the officer class was recruited from those who exhibited the qualities of leadership on the battlefield. Quoting further from his paper:

"Murat and Villa could never have entered a training camp.

"The notion that military ability takes its course in high powered thinking is very congenial to us, nicking in as it does with the national mania for superficial education. The theory is further stimulated by historians, who being students themselves, are inclined to depict their heroes as being highly endowed with the same traits which in themselves they so greatly revere. The chance reference to 1870 as the 'Schoolmasters' War' is often quoted by them with complete disregard of the fact that its initial successes were due to the ferocity of the unscholastic Steinmetz. It may well be that the greatest soldiers have possessed superior intellects, may have been thinkers; but this was not their dominant characteristic. With the possible exception of Moltke, all great generals with whom we are familiar owed their success to indomitable wills and tremendous energy in execution and achieved their initial hold upon the hearts of their troops by acts of demonstrated valor. However, we digress; the great leaders are not our responsibility, but God's.

"In the lower grades in a great war special education will be impossible and general education useless. We must commission only brave and energetic men. As the only means of carrying out this notion it is submitted that there be no training camps, that all commissions after the first battle go to soldiers of proven combat ability, and that all replacements be in the grade of private. In making this assertion it is evident that we are abandoning our thesis as to the advantages derivable from hereditary class distinctions. Such is exactly the case. It is futile to consider conditions which for us cannot exist. What we must do is to go back a thousand years or so and reconstitute in our armies the aristocracy of valor in which all aristocracy originated.

"Men commissioned and promoted in accordance with this plan will have as a start the aura of proven courage; they will have further the prestige of battle experience. Promotion so gained will arouse in them pride and a sense of obligation to be worthy of the honors conferred. Finally we shall very rapidly develop a hierarchy of courage and infinite solidarity since the junior will owe to himself his ability and to his superior its recognition; for captured objectives, not mildewed diplomas, will mark the road to preferment. If confirmation for these remarks is necessary it exists in two statements made by the master of war, Napoleon. 'Better,' he said, 'an army of stags led by a lion than an army of lions led by a stag.' And again, 'Every French soldier carries in his knapsack a baton of a Marechal of France.' Having completed our investigation; enumerated our difficulties, and advanced ideas for their correction, we close by summarizing the result of our efforts thus.

"Nothing new was discovered since the soul of man is changeless.

"Our difficulties differ in manifestation but not in nature from those Alexander experienced and Caesar knew.

"Our success or failure in the next war will depend on our ability to face the naked facts as they exist, and to utilize our means not as we would, but as we may."

TOLSTOY in "War and Peace" expresses a contempt for the military genius. He had served at the siege of Sevastopol in the Russian Army. The military men whom he admired the most were those like the officer Dolhturov who had no definite theories, or preconceived plans, but who was on the spot during the battle and whose decisions, based on the changing picture of the conflict, were sound. To be a good leader you must know intimately the course of the action for which you are responsible. An army commander cannot be involved in every platoon engagement but he should be at the front readily available for the decisions that must be made during the ebb and the flow of the battle. Tolstoy wrote of battle before the days of two-way radio, and in those days once the fight was on, the influence of the commander was much less than today.

Tolstoy did, however, appreciate the great importance of morale, which he refers to as the absence or presence of "moral hesitation." As Prince Andrew listens to the council of war he draws this conclusion about Army commanders: "The success of a military action depends not on them, but on the man in the ranks who shouts, 'We are lost!' or who shouts, 'Hurrah!' And only in the ranks can one serve with assurance of being useful." But this conclusion is not sound with the modern communication networks that are available to the modern army commander. Nevertheless the morale of the individual soldier will always be an important factor in every battle. None knew this better than Patton.

In discussing the duties of an officer, Patton has often said:

> "The safety, honor, and welfare of your country come first—always and every time.
>
> The honor, welfare and comfort of the men you command come next.
>
> Your own ease, comfort, and safety come last—always and every time."

In 1931 he prepared a paper which he entitled "The Secret of Victory." The references that he makes to the annals of the past were not culled from research done by another. He was one of the most assiduous students of history in the American Army. The story of war dominates the chronicles of mankind in spite of any wishful thinking to the contrary. Some day, when Utopia arrives, history books may be filled with economic progress instead of strife.

HE had a fine military library of over five hundred volumes. These books dealt with all of the aspects of war. Some were the biographies of the great battle leaders of all time. The study of these men gave an insight into qualities of leadership that a mere description of their campaigns could not have given.

Patton's "The Secret of Victory" stated:

"Our means of studying war have increased as much as have our tools for waging it, but it is an open question whether this increase in means has not perhaps obscured or obliterated one essential detail, namely, the necessity for personal leadership.

"Because the boy Alexander learned the art from the stories told by Philip's veterans or the rhymed chronicles of mythological contests is no reason for assuming that considering the time he was less versed in the warfare of his day than was at our period that great military scholar and practitioner Ferdinand Foch. Simple as was the schooling of Alexander, his requirements were simpler.

"All down the immortal line of mighty warriors the same is true; Hannibal, Caesar, Heraclius, Charlemagne, Richard, Gustavus, Turenne, Frederick, Napoleon, Grant, Lee, Hindenburg, Allenby, Foch, and Pershing were deeply imbued with the whole knowledge of war as practiced at their several epochs.

"But, also, and mark this, so were many of their defeated opponents; for as has been pointed out the secret of victory lies not wholly in knowledge. It lurks invisible in that vitalizing spark, intangible, yet as evident as the lightning—the warrior soul.

"There is no better illustration of the potency of this vitalizing element than is portrayed in the story of the 'Maid of Orleans.' For more than ninety years prior to her advent the armies of France had suffered almost continuous defeat at the hands of their British opponents. The reason for this state of things lay not in the inferiority of French valor, but in the reappearance of the foot soldier armed with the missile weapon —the longbow—as the temporary dominating influence on the battlefield. As a result of the recurrence of this tactical condition France suffered almost continuous defeats with the result that her people lost confidence, and developed a definite inferiority complex.

"Then came Joan whose flaming faith in her Heaven-sent mission rekindled the national spirit. Yet great as were her powers it is idle to suppose that, all unschooled in war as she was, she could have directed unaided the energy she produced.

"Like the fire beneath the boiler she produced the steam while ready to her hand she found competent machinery for its utilization in the shape of those veteran soldiers, Dunois, LaHire, and Saint Railles.

"The happy coincidence of her ignorant enthusiasm and their uninspired intelligence produced the phenomenal series of victories which freed France."

Referring to officers, Patton often remarked to those with whom he worked, "He is worth more dead than alive." This is often the case where the military situation demands that the life of the officer be sacrificed for the general good of the cause. He had very little sympathy with the idea of saving the great brains of some trained officer. He frequently said that you can develop brains, but you cannot develop leadership as easily as you can brains, and not to mind the loss of a few highly trained people. There will be plenty to take their place, but the important thing is to keep the battle going forward. Patton expected and desired to die in battle. He always included himself among those he considered expendable, and in battle pushed forward into fire to carry out personal reconnaissance.

QUOTING further from the Patton paper, "The Secret of Victory":

"That: 'Man cannot live by bread alone' and that: 'As a man thinketh so he is,' have been for generations droned from countless pulpits as the texts for prolix and unconvincing sermons until the cogency of these phrases has been somewhat dulled, yet they contain an infinity of truth.

Brigadier General Harry H. Semmes, Retired, a graduate of Dartmouth College and post graduate in law of George Washington University, served with Armor in both World Wars. For heroic action as a tank company commander of Company A, 1st Brigade, Tank Corps, in World War I, he received two DSC's, and was retired for disability. At the start of World War II he joined the 2d Armored Division and commanded the 3d Armored Landing Team in the African invasion for which action he received his third DSC. After the war he received his promotion to Brigadier General in the Reserves.

He is presently practicing law in Washington and is a member of the Council of the Armor Association. He is the author of a forthcoming volume on Patton entitled "Portrait of Patton."

U.S. Army

"Dry knowledge like dry rot destroys the soundest fiber. A constant search for soulless fundamentals, the effort to regularize the irregular, to make complex the simple, to assume perfect men, perfect material and perfect terrain as the prerequisites to war has the same effect on the soldier student. Indeed the statement that 'Education is a device by which men fool themselves into a sense of efficiency' is too often apposite.

"War is conflict, fighting an elemental exposition of the the age-old effort to survive. It is the cold glitter of the attacker's eye not the point of the questing bayonet that breaks the line. It is the fierce determination of the driver to close with the enemy not the mechanical perfection of the tank that conquers the trench. It is the cataclysmic ecstasy of conflict in the flier not the perfection of his machine gun which drops the enemy in flaming ruin. Yet volumes are devoted to armament; pages to inspiration.

"Since the necessary limitations of map problems inhibit the student from considering the effects of hunger, emotion, personality, fatigue, leadership and many other imponderable yet vital factors he first neglects and then forgets them.

"Obsessed with admiration for the intelligence which history had ascribed to past leaders he forgets the inseparable connection between plan, the flower of intellect, and execution, the fruit of the soul. Hooker's plan at Chancellorsville was masterly, its execution cost him the battle. The converse was true at Marengo. Yet since the historian through lack of experience and consequent appreciation of the inspirational qualities of generals fails to stress them and does emphasize their mental gifts which since he shares, he values, the student blandly follows and hugging the notion of mentality pictures armies of insensate pawns moving with the precision of machines and the rapidity of light, guided in their intricate and resistless evolutions over the battlefield by the cold effulgence of his emotionless cerebrations as transmitted to them by wire and radio through the inspiring medium of code messages.

"Doubtless he further assumes the same superhuman intelligence will translate those somber sentences into words of fire which shall electrify his chessmen into frenzied heroes who heedless of danger shall dauntlessly translate the stillborn infants of his brain to deeds.

"Was it so Caesar rallied the Twelfth Legion? Could the trackless ether have conveyed to his soldiers via the medium of staccato waves the inspiration Napoleon imparted by his ubiquitous presence when before Rivoli he rode five horses to death: 'To see everything himself?'

"Staff systems and mechanical communications are valuable but above and beyond them must be the commander; not as a disembodied brain linked to his men by lines of wire and waves of ether; but as a living presence, an all-pervading visible personality.

"The unleavened bread of knowledge will sustain life but it is dull fare unless leavened by the yeast of personality.

"Could seamanship and shooting have made the Bon Homme Richard prevail over the Serapis or have destroyed the French fleet in Aboukir Bay had Paul Jones and Horatio Nelson been other than they were? What intellectual ghost replete with strategem could have inspired men as did these two who in themselves have epitomized not only knowledge of war but spirit of battle.

"In defining the changeless characteristics of war we mentioned force, place and time. In our calendar of warriors Napoleon Bonaparte and Stonewall Jackson stand preeminent in their use of the last of these —time. Of the first his soldiers boasted: 'He wins battles more with our legs than with our bayonets,' while Jackson's men proudly called themselves 'Old Jack's Foot Cavalry.'

"Libraries have been written on the deeds of both wherein shrewd critics have assigned success to all manner of things; as tactics, shape of frontiers, happily placed rivers, mountains or woods, intellectual ability, or to the use of artillery. All in a measure true but none vital, nor is it even in the speed of the operations that the secret lies but in the inspiring spirit with which they so inoculated their soldiers as to lift weary footsore men out of themselves and make them march forgetful of agony as did Massena's division after Rivoli or Jackson's at Winchester.

"No words ever imagined could have produced such prodigies of endurance as did the sight of the boy general ill perched on his sweating horse or of the stern puritan (Jackson) plodding ever before them on Little Sorrel. The ability to produce endurance is but an instance of that same martial soul which arouses in its followers that resistless emotion defined as elan, the will to victory or viciousness depending on whether the vocabulary used is French, German or Pacifist. However defined, it is akin to that almost cataleptic burst of physical and mental exuberance shown by the athlete when he breaks a record or plunges through the tacklers and by the author or artist in the creation of a masterpiece. The difference is that in the athlete or artist the ebullition is autostimulated while with an army it is the result of external impetus—leadership.

"In considering war we must avoid that adoration of the material as exemplified by scientists who deny the existence of aught they cannot cut or weigh.

"In war tomorrow we shall be dealing with men subject to the same emotions as were the soldiers of Alexander; with men but little changed for better or for worse from the starving shoeless Frenchmen of the Italian campaign. With men similar save in their arms to those whom the inspiring powers of a Greek or a Corsican changed at a breath to bands of heroes all enduring and all capable.

"Like begets like; in the armies of the great we see the reflection of themselves and we find: self-confidence; enthusiasm; abnegation of self; loyalty and courage.

"Resolution no matter how adamant, mated to knowledge no matter how infinite, never begot such a progeny.

"Such offspring arises only from blood lines as elemental as themselves. The leader must be incarnate of them.

"Nor is the suggestion of Nicodemus as to rebirth (John III 3 to 6) the only means of producing such a leader. There are certainly born leaders but the soldier may also overcome his natal defects by unremitting effort and practice.

"Self-confidence of the right sort as differentiated from bumptious presumption based in ignorance, is the result of proved ability, the sense of conscious achievement. Its existence presupposes enthusiasm, for without this quality no one could endure the travail of acquiring self-confidence. The enthusiasm which permits the toil and promises the achievement is simply an all-absorbing preoccupation in the profession elected.

"Endurance too is linked with self-confidence, mentally it is the ability to subvert the means to the end, to hitch the wagon to a star and to attain it. Physically, it presupposes sufficient enthusiasm to force on nature no matter how reluctant the obligation of constant bodily fitness through exercise. The expanding waistline means the contracting heart line in length and vigor. Witness Napoleon at and after Jena.

"Abnegation of self seems perhaps incongruous when applied to such selfish persons as Frederick or Napoleon but this is not the case. Self can be subordinated to self. The Corsican leading his grenadiers at Lodi subordinated the life of Bonaparte to the glory of Napoleon.

"Loyalty is frequently only considered as faithfulness from the bottom up. It has another and equally important application, that is from the top down. One of the most frequently noted characteristics of the great who remained great is unforgetfulness of loyalty to their subordinates. It is this characteristic which binds with hoops of iron their juniors to them.

"A man who is truly and unselfishly loyal to his superiors is of necessity so to his juniors and they to him.

"Courage, moral and physical, is almost a synonym of all the foregoing traits. It fosters the resolution to combat and cherishes the ability to assume responsibility be it for successes or failures. No Bayard ever showed more of it than did Lee after Gettysburg.

"But as with the Biblical candle these traits are of no military value if concealed. A man of indifferent manner will never inspire confidence. A cold reserve cannot beget enthusiasm, and so with the others there must be an outward and visible sign of the inward and spiritual grace.

"It then appears that the leader must be an actor and such is the fact. But with him as with his bewigged compeer he is unconvincing unless he lives his part.

"Can a man then acquire and demonstrate these characteristics? The answer is they have—they can. For 'As a man thinketh, so he is.' The fixed determination to acquire the warrior soul, and having acquired it to conquer or perish with honor, is the secret of victory."

IN July 1945, Patton prepared some "General Notes on Remarks to be made to Divisions." This was written after the close of World War II. Patton again sensed that a fine fighting machine was about ready to be thrown on the dump heap. He had seen it happen in 1918 and he knew that the United States, always trustful, would feel safe again. As always—the war just finished was the "last" war we would ever have. He said:

"Twice in my lifetime, America, the Arsenal of Democracy, has come from behind to insure victory. Is it not evident that should another war arise, those producing it will make every effort to see that the Arsenal of Democracy is knocked out in the first round? How this can be done I do not know, but I do know that the progress made in airplanes and self-propelled missiles is such that the possibility of an early knockout cannot be discounted.

"Perhaps a good illustration of what I am trying to put across to you is this: When I went to school, and I presume it is the same now, all the children were taught how to form in column and march out of the building in an orderly manner in case of fire. This instruction did not, so far as I know, produce fires, but when fire occurred, the lives of the majority of the children were saved. If we go to the extreme of saying that preparedness produces wars, then the instruction in fire drills would produce fires. Therefore, we should not teach children that a fire may come, that the building may burn, and as a result of such teaching have the sad duty of removing the charred little bodies from the ruined schoolhouse.

"You men are all American citizens, and in your generation you will have a very large voice in determining the election of our public servants and the enforcement of our laws. I am sure that you have found out that discipline, self-reliance, mutual respect and faith are necessary in the Army. These traits are just as necessary in civil life. Laws which are not enforced had better not be promulgated.

"Referring again to the fire department aspect of the prevention war, a very large proportion of the duties of the fire departments in large cities is not the extinguishing of fires, but their prevention through advice and supervision. You men are all potential firemen. You have put out the fire by your heroic efforts. It is now your duty as citizens to see that other fires do not occur, and that you and your children are not again called upon to extinguish them.

"I have been speaking to you, not as your Commanding General, but rather as an old man to young men. I am in no way trying to propagandize you, but as I said before, it is my considered opinion that my duty demands that I should explain to you things as I see them.

"In closing, let me say that it is my profound hope that we shall never again be engaged in war, but also let me remind you of the words attributed to George Washington: 'In time of peace, prepare for war.' That advice is still good."

In a letter dated 6 June 1944 to his son, who was then a cadet at West Point, Patton said:

"Dear George:

"At 0700 this morning the British Broadcasting Company (BBC) announced that the German Radio had just come out with an announcement of the landing of Allied Paratroops and of large numbers of assault craft near shore. So this is it.

"This group of unconquerable heroes whom I command are not in yet but we will be soon—I wish I was there now as it is a lovely sunny day for a battle and I am fed up with just sitting.

"I have no immediate idea of being killed but one can never tell, and none of us can live forever, so if I should go don't worry but set yourself to do better than I have.

"All men are timid on entering any fight whether it is the first fight or the last fight. All of us are timid. Cowards are those who let their timidity get the better of their manhood. You will never do that because of your blood lines on both sides. I think I have told you the story of Marshal Turenne, who fought under Louis XIV. On the morning of one of his last battles—he had been fighting for forty years—he was mounting his horse when a young aide-de-camp who had just come from the court and had never missed a meal or heard a hostile shot said: 'Sir, it amazes me that a man of your supposed courage should permit his knees to tremble as he walks out to mount.' Turenne replied, 'My lord duke, I admit that my knees do tremble but should they know where I shall this day take them they would shake even more.' That is it. Your knees may shake but they will always take you towards the enemy. Well, so much for that.

"There are apparently two types of successful soldiers. Those who get on by being unobtrusive and those who get on by being obtrusive. I am of the latter type and seem to be rare and unpopular; but it is my method. One has to choose a system and stick to it. People who are not themselves are nobody.

"To be a successful soldier you must know history. Read it objectively—dates and even the minute details of tactics are useless. What you must know is how man reacts. Weapons change but man who uses them changes not at all. To win battles you do not beat weapons—you beat the soul of man, of the enemy man. To do that you have to destroy his weapons, but that is only incidental. You must read biography and especially autobiography. If you will do it you will find that war is simple. Decide what will hurt the enemy most within the limits of your capabilities to harm him and then do it. TAKE CALCULATED RISKS. That is quite different from being rash. My personal belief is that if you have a 50% chance, take it because the superior fighting qualities of American soldiers led by me will surely give you the extra 1% necessary.

"In Sicily, I decided as a result of my information, observations and a sixth sense that I have that the enemy did not have another large scale attack in his system. I bet my shirt on that and I was right. You cannot wage war safely, but no dead general has ever been criticized, so you have that way out always.

"I am sure that if every leader who goes into battle will promise himself that he will come out either a conqueror or a corpse, he is sure to win. There is no doubt of that. Defeat is not due to losses but to the destruction of the soul of the leaders—the live to fight another day doctrine.

"The most vital quality a soldier can possess is SELF-CONFIDENCE, utter, complete and bumptious. You can have doubts about your good looks, about your intelligence, about your self-control, but to win in war you must have NO doubts about your ability as a soldier.

"What success I have had results from the fact that I have always been certain that my military reactions were correct. Many people do not agree with me; they are wrong. The unerring jury of history written long after both of us are dead will prove me correct.

"Note that I speak of military reactions. No one is born with them any more than anyone is born with muscles. You can be born with the soul capable of correct military reactions or the body capable of having big muscles, but both qualities must be developed by hard work.

"The intensity of your desire to acquire any special ability depends on character, on ambition, I think that your decision to study this summer instead of enjoying yourself shows that you have character and ambition—they are wonderful possessions.

"Soldiers, all men in fact, are natural hero worshippers. Officers with a flair for command realize this and emphasize in their conduct, dress and deportment the qualities they seek to produce in their men. When I was a second lieutenant I had a captain who was very sloppy and usually late, yet he got after the men for just those faults; he was a failure.

"The troops I have commanded have always been well dressed, been smart saluters, been prompt and bold in action because I have personally set the example in these qualities. The influence one man can have on thousands is a never-ending source of wonder to me. You are always on parade. Officers who through laziness or a foolish desire to be popular fail to enforce discipline and the proper wearing of uniforms and equipment not in the presence of the enemy will also fail in battle and if they fail in battle they are potential murderers. There is no such thing as a good field soldier. You are either a good soldier or a bad soldier.

"Well, that has been quite a sermon, but don't get the idea that it is my swan song, because it is not. I have not finished my job yet. Your affectionate father, G. S. Patton, Jr."

Again on 21 August 1944 he wrote to his son:

"My dear George:

"Your letter of August 8, duly dated, just reached me. I believe that by now you know where I am, but if you know what I am doing you are smarter than the Germans.

"We have been having a swell time and I trust that good fortune continues to attend our efforts. I have used one principle in these operations which has been remarkably successful, and that is to—

'Fill the unforgiving minute
With sixty seconds worth of distance run.'

"That is the whole art of war, and when you get to be a general, remember it!

"What I have known is what I have intended to do and then have it done. By acting in this manner I have always gotten to the place the enemy expected me to come about three days before he got there.

"We are having another try this morning, which is the most audacious we have yet attempted, but I am quite sure it will work."

AFTER the atomic bomb had been dropped in Japan he wrote to his son with the comment that new weapons do not eliminate wars. He said:

"So far as the atomic bomb is concerned, while it is a scientific invention of the first water, it is not as earth-shaking as you might think. When man first began fighting man, he unquestionably used his teeth, toe-nails and finger-nails. Then some day a very terrified or else very inventive genius picked up a rock and bashed a man in the head while the latter was gnawing at his vitals. The news of this unheard-of weapon unquestionably shocked Neolithic society, but they became accustomed to it. Thousands of years later, another genius picked up the splintered rib of a mastodon and using it as a dagger struck the gentleman with the rock. Again pre-historic society was shocked and said, 'There can be no more wars. Did you hear about the mastodon bone?' When the shield, slingshot, throwing stick, and the sword and armor were successively invented, each in its turn was heralded by the proponents as a means of destroying the world or of stopping war. Certainly the advent of the atomic bomb was not half as startling as the initial appearance of gunpowder. In my own lifetime, I remember two inventions, or possibly three, which were to stop war; namely the dynamite cruiser Vesuvius, the submarine, and the tank. Yet, wars go blithely on and will when your great-grandchildren are very old men."

Patton was sentimental and highly emotional, and this sentiment and emotionalism were important driving factors in his leadership. His principles of war were embodied in four basic ideas.

"First —surprise; find out what the enemy intends to do and do it first.

"Second—rock the enemy back on his heels—keep him rocking—never give him a chance to get his balance or build up.

"Third —relentless pursuit—a l'outrance the French say—beyond the limit.

"Fourth—mop him up."

A much quoted Patton saying about battle leadership, in which he urged his troop commander to lead from the front and not from the rear, is "You can pull spaghetti but you can't push it."

In discussing with his wife his hopes of victory in World War II, he made the statement that, "It has been proven from experience in all the armies that man can fight for sixty hours. If we can fight for sixty-four hours, we can lick them, and I think we can."

He often stated that the most vital qualities in an officer are imagination, unselfishness and courage.

Imagination is to think what the enemy would do and beat him to the draw.

Unselfishness—always give credit where it is due. If we win, you take the credit. If we lose, as Captain of the ship, I take the blame.

Courage—to shoulder responsibility.

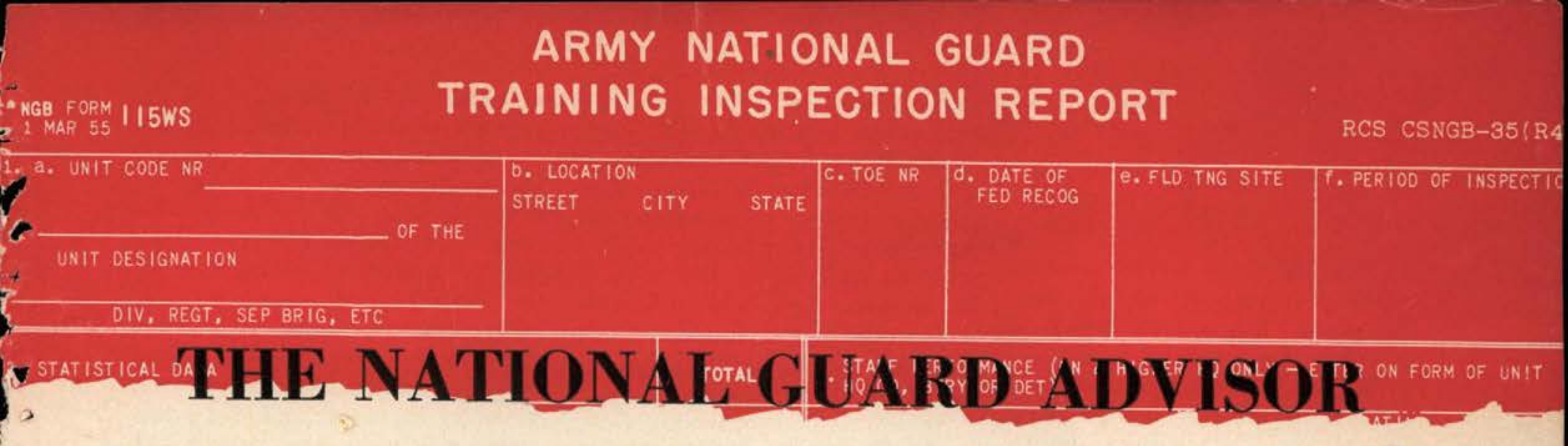
The qualities of leadership are the same in any field. Patton said: "I would be delighted to have an Archbishop as a division commander, anytime."

HE repeatedly said to his officers and his men that when playing a maneuver or an exercise, it must be done with imagination, and drive, or little is gained. He has been known to remark, "This is not a maneuver, this is war—as far as I am concerned."

Patton was one of the rare "Great Captains" of war. He truly had the feel of battle. A gifted few in history have had this battle judgment; this quality; a combination of imagination, daring, skill, and an instantaneous appreciation of the task. It cannot be learned at military schools, though the background may be acquired there. Experience in battle is necessary but study and experience are not enough. The leaders that have it stand out above all others.

The United States Army is blessed in having top leadership today.

War is conflict, fighting an elemental exposition of the age-old effort to survive. It is the cold glitter of the attacker's eye not the point of the questing bayonet that breaks the line. It is the fierce determination of the driver to close with the enemy not the mechanical perfection of the tank that conquers the trench. It is the cataclysmic ecstasy of conflict in the flier not the perfection of his machine gun which drops the enemy in flaming ruin. . . . G. S. Patton, Jr.



ARMY NATIONAL GUARD
TRAINING INSPECTION REPORT

NGB FORM 115WS
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THE NATIONAL GUARD ADVISOR

CARDED

by LIEUTENANT COLONEL HOWARD C. HOOKER

CAREER plans for Regular Army officers include a tour of duty with one of the civilian components—National Guard, ROTC, or ORC. However, this type duty is not limited to RA, a large percentage of the assignments being filled by EAD officers of the reserve components. Now, with the increased emphasis and revitalization of the reserve program contemplated under proposed legislation, the number of assignments probably will be increased, and a large part of them will be with units of the National Guard, a key element in the national defense structure and one which will become increasingly important under current plans. This has been increased proportionately due to the additional National Guard Armored Divisions.

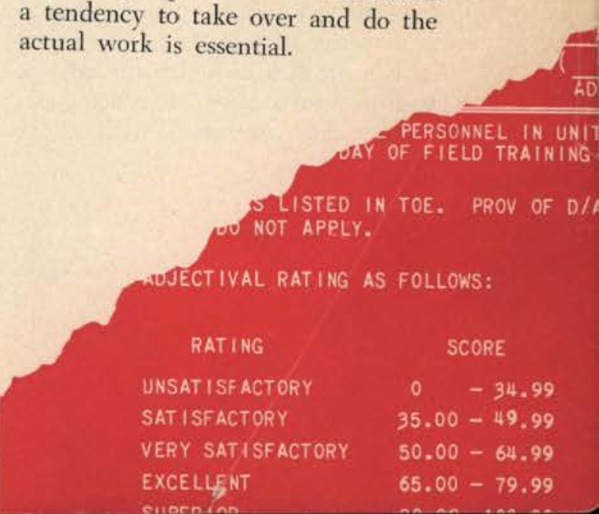
It may be that many of those destined for duty with the National Guard will be like the writer who, with no prior experience with civilian components, reported for duty in December, 1951, as the advisor to a reconnaissance battalion of an armored cavalry regiment. There was nothing particularly unusual about the tour except perhaps that it lasted slightly longer than normal, and that two changes in assignment took place. During these three periods with different units, varying situations presented a variety of problems, solutions, and relations. This is a description of some conditions found and a summary of conclusions reached, presented to assist in orientation of prospective advisors or in consideration of future policies.

The title, Advisor, is appropriately applied to the representative of the Army on duty with the National Guard, much more so than the term, Instructor, used previously. His mission is to assist the commander in building a unit capable of performing its primary role on M-day. Having no direct responsibility, he exercises, through advice and assistance to the unit commander, a type of supervision of the training of the units to which detailed. He conducts formal and informal inspections of the administration, supply, maintenance, facilities and other activities in addition to training. He functions as Surveying Officer, certifies salvage, verifies receipt of property, and sits as a member of boards for appointment and promotion of officers and warrant officers. In brief, he is interested, without command relation, in almost all the activities of the unit. To function effectively, he must display a personal interest in, and intimate familiarity with, all aspects of the unit, including its inherent limitations. Although legally restrained from being a member of the unit, except in isolated cases, he must nevertheless closely identify himself with the unit to the end that he takes pride in its accomplishments and feels a sense of responsibility for its failures while he retains as nearly complete objectivity as possible and avoids any bias which might blind him to conditions or actions which are unsound.

It is very important that an officer selected to be advisor to the National Guard be well qualified, both in general military subjects and in those of his branch. In most instances training will not progress beyond the basic unit phase but he will probably be called upon for comment and advice about more advanced subjects. The commander has the right to expect an intelligent answer to any relevant, military question about his unit; repeated failure to provide such an answer, regardless of the reason, will soon lead to a reluctance to seek advice. In addition, it is essential that the advisor be able to recognize substandard conditions and to offer constructive suggestions about them. Therefore, any officer selected for detail to this type duty who has not had recent experience with a similar type unit of the active army, or other appropriate qualifying experience, or has not attended a recent course at his branch service school, should be routed through the school for a period of orientation.

Almost as important is the factor of suitability of temperament. Such characteristics as tact, patience, firmness, continuity of purpose, and willingness to have others receive credit for accomplishments will contribute materially to the effectiveness of an advisor. Likewise the ability to guide others in job performance rather than a tendency to take over and do the actual work is essential.

LIEUTENANT COLONEL HOWARD C. HOOKER, Armor, served in the Pacific during World War II with an Amphibian Tank Battalion. Subsequent to the War he attended the Advanced Class at The Armored School and served as a member of the U. S. Army Mission to Paraguay. He just completed a tour as Advisor to several units of the California National Guard. He is presently en route to Europe for assignment.



PERSONNEL IN UNIT
DAY OF FIELD TRAINING

S LISTED IN TOE. PROV OF D/A
DO NOT APPLY.

ADJECTIVAL RATING AS FOLLOWS:

RATING	SCORE
UNSATISFACTORY	0 - 34.99
SATISFACTORY	35.00 - 49.99
VERY SATISFACTORY	50.00 - 64.99
EXCELLENT	65.00 - 79.99

NATIONAL GUARD BUREAU
RETIREMENT CREDITS RECORD
SERIAL NO.
GRADE
(3)
EXTENSION COURSES COMPLETED
MISCELLANEOUS DUTIES PERFOR
OINTS
DATE
DATE PERFORMED

Obviously, the personnel situation in the Department of the Army does not permit such a high degree of selectivity that the characteristics described can be ensured. Rather a description of the conditions existing and of the characteristics desired should be published to enable officers to make intelligent use of the appropriate space on annual preference cards after careful self-analysis. After selection, it is incumbent upon the individual to develop and exploit those characteristics which will enhance chances of success; if he fails to do so, he should be transferred to a more suitable assignment.

The problems of National Guard units are not dissimilar to those of an active duty unit, but are more complex by time limitations. To elucidate, units train one night per week in an armory drill status, and two weeks per year in active-duty-for-training status. The same TO&E is used, although the reduced strength column for enlisted personnel may be authorized. Equipment authorized is that listed in the TO&E, limited by availability and actual needs in relation to assigned strengths and state of training. The experience of the writer has been that, with few exceptions, equipment shortages or substitutions have not been a serious factor in current training. In fact, some of the training aids on hand are superior to any available to company commanders during World War II.

A critical problem is recruiting. The unit commander is responsible for building up and maintaining the strength of his unit, and current loss rates are often almost equal to enlistments. While proposed legislation may alleviate this situation, now it is a matter of considerable concern. This is an area in which the advisor tends to remain aloof, often being satisfied to make periodic remarks about the adequacy of current strength, thus failing to grasp the significance of identifying himself with the unit and to fulfill his obligations. Adequate strength is of paramount importance to M-day effectiveness; it must be included in the scope of his interests. He should analyze the problem, make specific recommendations, and be prepared to help carry out the program as adopted.

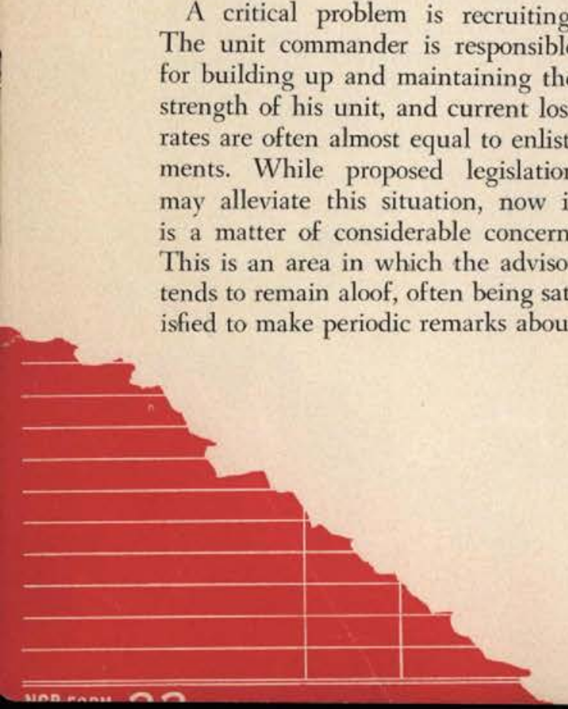
An important contributing factor in the recruiting problem is a lack of program to focus the interest of young men of the community upon the armory as a center of activity. The adoption of an active, competitive sports program would constitute a positive step toward such an objective, and thereby create conditions favorable for attracting new enlistees and for reducing current losses.

Perhaps the most common problem and also the one of most direct interest to an advisor is that of ensuring an adequate training program. The limited time makes the building of an effective program very difficult, particularly when compared with the standards for active units. Continuity is most difficult to achieve when there is a seven day period between classes. When combined with low strengths, the secondary position the military program necessarily occupies in relation to civil employment, and a dearth of qualified instructors, the difficulties created become a real challenge to the advisor in accomplishing his mission. But he must not become discouraged by the difficulties nor feel frustrated because he will be unable to "take the bull by the horns" and initiate a positive program immediately. Either of these attitudes might well destroy his usefulness, reducing his functions to those of a perfunctory Inspector General when, in fact, he should operate as though he were an ex-officio executive officer, or assistant to the commander. He must seek, through analysis, through positive thinking translated into practical action, and through firm but tactful insistence upon sound principles, to extend the efforts of unit officers until they are able to operate effectively without aid.

Qualification of officers is a subject of continuing discussion and interest, as well as of some concern. They have a dual status: they are appointed by the State, which has primary responsibility for all personnel actions; and they are, if approved, extended commissions as reserve commissioned officers of the Army. This latter status, called Federal recognition, is requisite to qualification for pay from Federal funds, and constitutes the lever by which the Army attempts to maintain proper standards. As a member of the board which examines applicants and makes recommendations regarding extension of Federal recognition in initial appointments, promotions, and transfers between branches, the advisor is most active in conducting the examination and most conscientious in applying the standards. He may even meet a situation where he will be outvoted by the board majority. If so, and he is convinced that principles are being violated, he should not hesitate to submit a minority report, being careful to substantiate his views. Obviously it is better that the findings be unanimous, as they probably will be if proper relations exist and the advisor has the confidence and respect of the commander and his subordinates. Nevertheless, when the chips are down, principles must be upheld.

It is generally recognized that the best method for a National Guard officer to obtain the required professional knowledge is by attendance at the appropriate service school. There will be cases, however, where for lack of time or conflict with civil employment this course of action is impracticable. For those, extension courses are the next best. In considering qualifications, advisors should be permitted to make an evaluation of an officer's civilian occupation. Where he is occupying an executive or supervisory or comparable position in industry, or its equivalent, his achievements in that capacity merit serious consideration in appointments and promotions as a demonstration of leadership, maturity of judgment and stability, particularly in the senior grades. Certainly this factor should not be determinative, nor used as an excuse for sub-standard performance, but too often it has been ignored completely.

The unique position of the National Guard in the defense structure makes the relationship between the advisor and the commander somewhat anomalous. The commander-in-



chief of the National Guard being the Governor of the respective State, advisor channels are completely separate from, although parallel to, those of the unit being served. Consequently the advisor's ability to ensure adherence to sound principles and proper procedures is directly dependent upon his success in influencing the commander to accept suggestions. It is not likely that a situation will develop wherein the advisor will be unable to see, talk with, and submit recommendations to the commander, although the commander may very well close his mind to suggestions for the improvement of his unit. The capability of maintaining access to the commander's mind and of creating a receptivity to well-considered recommendations is the heart of the advisor-commander relationship. It is not enough to say that the commander has some of this responsibility; rather it behooves the advisor to promote the conditions and atmosphere conducive to success.

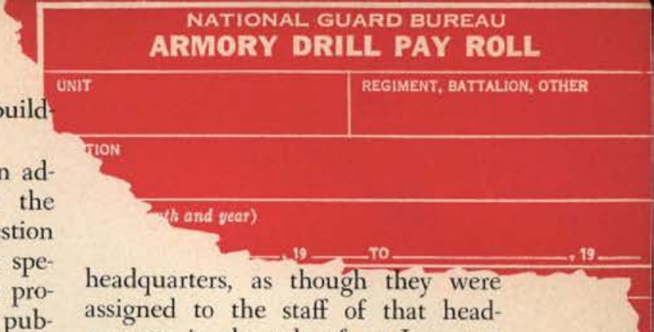
It is as impractical to define the procedures for an advisor in accomplishing his objectives as to outline the specific actions for solving all tactical problems. Trite though it may sound, the procedures adopted depend on the situation. In fact, the problem in the National Guard is more complex because there are two personalities involved—the advisor and the commander—with no command relation. However, certain generalities can be made which, if intelligently applied in specific cases, should prove helpful. One of these was suggested above—that the advisor must have a genuine interest in helping the commander develop his unit. In such a case, he will certainly tend to identify himself with the unit, an attitude essential to maximum effectiveness. An advisor, as the title implies, can make suggestions and recommendations only, never issue orders, but he must not remain aloof until his advice is sought in every situation. Alertness in recognizing conditions or actions which are substandard, tact and firmness in seeking the most propitious moment to point them out to the commander, and readiness to make positive suggestions for improvement are qualities essential to success. Activities must not be limited to one field, such as training, but should encompass all elements of the commander's functions in building a military organization.

In fulfilling his obligations, an advisor will soon recognize that the degree of insistence that a suggestion be adopted must vary with the specific problem involved. Where a procedure is directed in appropriate publications (e.g. accounting for property or unit funds), firmness in pointing out deviations and recommending corrective action is warranted. On the other hand, where a decision must be made in an area susceptible to individual judgment, the approach may be quite different. In either case, the utmost tact is required to guard against the implication, just or unjust, that command prerogatives are being assumed. Above all, the advisor must not compromise on principles. If a violation occurs to the detriment of the unit and its mission, and all efforts to effect local correction fail, the matter should be presented to the next senior advisor for action at the higher level.

In extreme cases, it may be considered necessary to recommend the relief of the unit commander, or staff officer, who has demonstrated an inability to discharge his responsibility. Such a contingency should be approached with the greatest care and after calm deliberation, and the decision made on a sound appraisal of all the factors. Nevertheless, when action of this nature is considered justified, it should be taken by presenting the recommendation to the next higher echelon in advisor channels, citing specific facts and circumstances. In this, as in all other matters, it must be remembered that responsibility for final action rests with the National Guard, not the Department of the Army, although the DA has a real and proper interest in any action or condition which affects the efficiency and M-day effectiveness of the unit.

The matter of presenting problems to the next higher echelon, as discussed above, is one fraught with possibilities. In virtually every situation, solution of a problem at the lowest possible level, is the most desirable. Advisors must work with, and help, the commander of the unit to which detailed. To do so, they must avoid creating the impression that they are functioning merely to report deficiencies to the next higher headquarters, as though they were assigned to the staff of that headquarters in the role of an Inspector General. Direct contact with the commander of the next higher headquarters regarding a problem is rarely, if ever, a proper action. Such matters should be handled through the advisor, and then only if all efforts to solve it locally have failed. Accordingly, advisors, who are selected on the basis of experience and maturity, should be permitted to operate with a minumum of supervision from seniors.

In summary, it may be said that the advisor has the mission of helping the commander build an effective unit, capable of functioning in its primary role on M-day, or with a minimum of training subsequently. Among others his duties include actions to ensure that Federal property is being used as intended and is properly maintained, and that the Federal government receives a dollar's worth of training for every dollar spent. To do this, he must analyze every aspect of the unit's activities, recognize substandard conditions, point them out to the proper person to effect correction, make positive suggestions for improvement, and be prepared to spend physical and mental energy to make the program effective. His only tool is his ability to influence the commander, except in the rare cases when it is necessary or expedient to submit the matter to the next higher level. He should develop and exploit those characteristics which will enhance his ability to get his recommendations adopted, and he must be willing to see the commander or some other Guardsman receive full credit for accomplishments which may have been due primarily to his work. His satisfaction must, and will, come from doing a good job, with end results that will be beneficial both to the advisor and the national defense program.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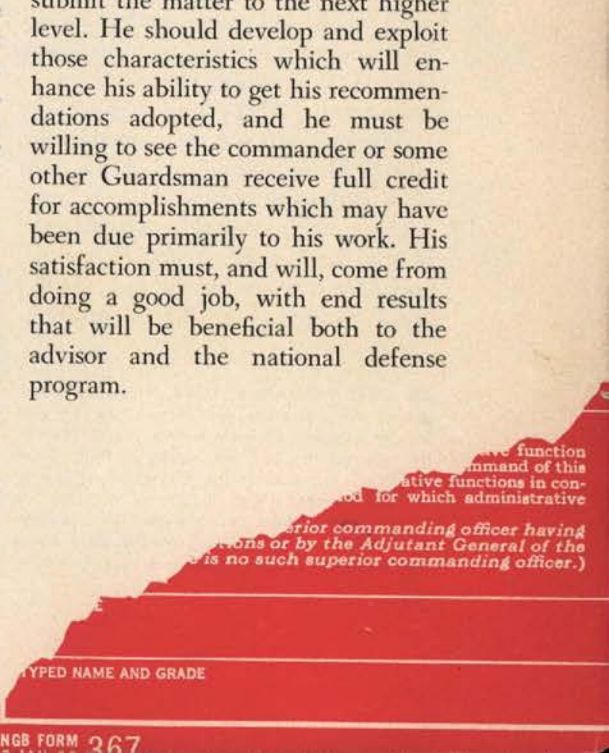
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THE NCO-SPECIALIST PROGRAM

by COLONEL WILLIAM R. TUCK

IN June 1953 a concept plan was approved by the Chief of Staff which proposed that NCO identification and status be given only to enlisted personnel holding leadership positions and that a separate category of enlisted personnel would be established which would include those who have technical and administrative skills but do not have the responsibilities of leadership. This separation would apply only to the top four enlisted grades.

9/8

The development of the details of the NCO-Specialist program proved to be long and laborious, but very interesting. As the project would affect every field in which soldiers are used, each and every major agency had a definite interest in it and each wanted full consideration given to its interests, ideas, and suggestions.

The program was developed generally by three activities. First, a draft of a proposed regulation was written and staffed within Department of the Army Staff Agencies; second, and concurrent with the first, TOE's were studied and NCO positions

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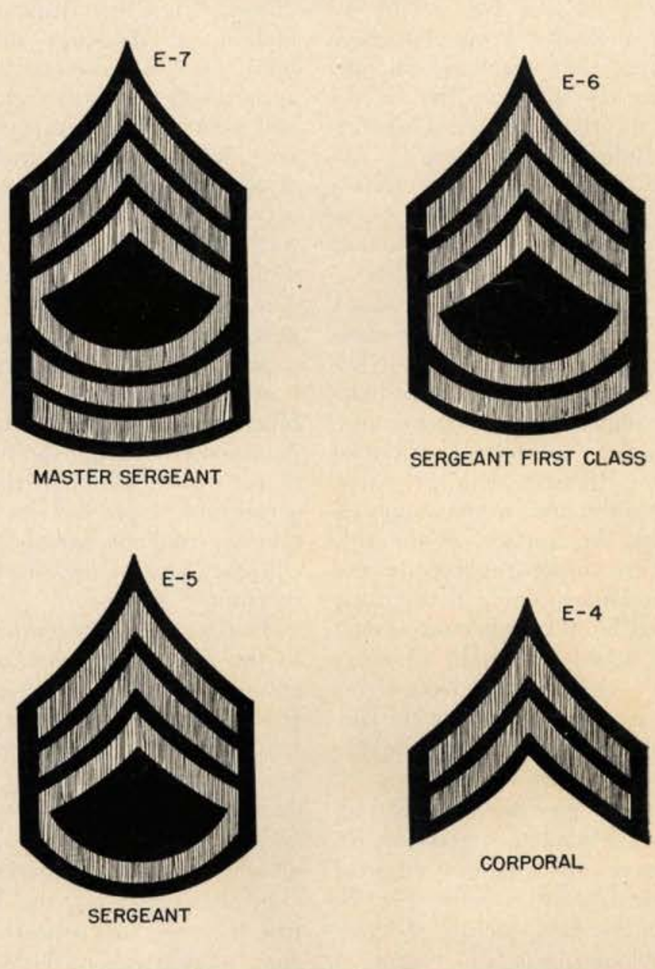
NCO CHEVRONS

Many words have appeared in print concerning the noncommissioned officer. Most of these remarks have dealt with the pride and prestige of the NCO. On the first of July of this year the Army will institute on a world-wide basis a new concept which is a step in the right direction. How this program was developed during the past several years is an interesting story. Its success will depend on the man wearing the stripes and the officer who recommends the man for the job.

were selected based on the approved concept; thirdly and, again concurrently, the titles and insignia were developed.

As could be expected, the writing of the regulation, which was actually the development of doctrine, took months to complete. Three complete drafts and redrafts of the proposed regulations were fully staffed with all Department of the Army Staff Agencies and Technical and Administrative services, and innumerable modifications to these drafts were worked out with the individual agencies.

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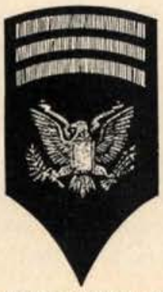
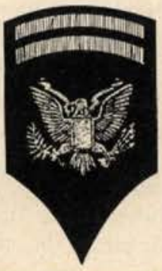
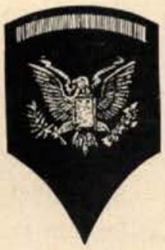


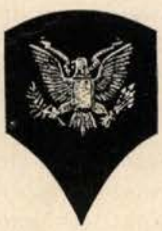
MASTER SPECIALIST



SPECIALIST FIRST CLASS



SPECIALIST SECOND CLASS



SPECIALIST THIRD CLASS

While the regulation was being compiled all Tables of Organization were studied and NCO positions were selected. First, expert job and personnel analysts made their selections. Then their recommendations were sent to the proponents of the Tables of Organization, i.e., the Chief of Army Field Forces for TOE's of the Field Army, and the Chiefs of the Technical and Administrative Services for TOE's of their respective services. After TOE proponents had made their studies and recommended NCO positions, the Tables were then reviewed by an Army General Staff Working Committee to insure uniformity and consistency among the various tables, and to clear up controversial areas.

The third general activity was the development and selection of the titles and insignia.

Mr. Arthur E. Dubois, Director of Heraldic Affairs, Department of Defense, was required to furnish recommendations. A number of recommended titles and insignia were submitted by Mr. Dubois, who researched into his extensive files and used his long experience in heraldic studies in the development of his recommendations. These recommendations were reviewed, and four proposed titles and insignia were selected for a field survey to determine which was most acceptable. The title "Specialist" and the insignia finally approved were those determined by the field surveys.

It is interesting to note at this point that considerable research of the history of our Army and of various systems previously in effect went into the development of the program. One previous system in particular furnished many of the ideas. This was the system in effect just prior to World War II, when the NCO was recognized and respected as a person of authority and proven leadership ability. In those days the number of NCO's was small and their prestige was great. At the same time recognition was given to privates and privates first class having technical or administrative skills by extra "Specialist" pay and title. The new title "Specialist" was suggested by that system, as is the concept that only enlisted leaders should be NCO's, while others should receive pay and recognition commensurate with their ability in their particular field.

Finally, in January 1954, from the standpoint of the Department of the Army Agencies, the three activities had been completed; the regulation was ready, all TOE's had been reviewed and NCO positions selected; and the title of "Specialist" and the insignia had been selected and found acceptable. Now that the package was complete and had been thoroughly checked by the staff it was decided that it should be submitted to the field for comments and suggestions, and to determine its acceptability, prior to presenting it to the Chief of Staff for final approval. To insure proper representation of opinion each Continental Army Commander and Overseas Theater Commander was furnished with briefing material, copies of the proposed regulations, samples of TOE, and of the new Specialist insignia. Each commander was requested to have the proposed program explained to at least 200 commissioned officers and 1,000 enlisted personnel in his command and to obtain their opinions. A questionnaire was furnished by which the acceptability of the proposed program could be determined. A total of 19,207 personnel were thus surveyed, and of these 82% approved the plan. If nothing else, this overwhelming approval indicates that personnel throughout the Army recognize the need for such a program.

When the NCO-Specialist Program was approved on 6 April 1954 it would appear that its implementation would soon follow. However, two other major projects were being completed which had a definite bearing on the implementation of the NCO-Specialist Program. One of these projects was a new Enlisted MOS code and structure. Both the NCO-Specialist Program and the new Enlisted MOS code would require major revisions to TOE and extensive personnel actions by units in the field. Thus it was considered highly desirable, from the standpoint of economy, to have both accomplished by one revision and reprint of TOE; and, from the standpoint of efficiency, to have only one conversion program by units. From the standpoint of strength reporting, personnel accountability, and to minimize confusion it was determined essential that the conversion to these new programs be accomplished world-wide and Army-wide on the same date. It was estimated that at least eight months would be required to revise tables and pertinent regulations and to accomplish the actions necessary prior to placing this program into effect.

Grade	NCO's	Specialists
E-7	**Master Sergeant (MSgt)**	**Master Specialist (MSP)**
E-6	**Sergeant First Class (SFC)**	**Specialist First Class (SP1)**
E-5	**Sergeant (Sgt)**	**Specialist Second Class (SP2)**
E-4	**Corporal (Cpl)**	**Specialist Third Class (SP3)**

Figure 1.

The other major project which affected the time of implementation was the development of a new service uniform for the Army. The plan for this project, which had not yet been approved, proposed that the troops would begin wearing the new uniform in 1956. Since the initial issue alone of the new Specialist insignia would cost over a half million dollars, it was decided, in the interest of economy, to procure the insignia in the colors of the new uniform and have them worn on the present uniform in the interim. It was estimated that a mimimum of eight months would be required to procure and distribute the new insignia.

When the new MOS code and the new uniform were approved in August 1954, work was immediately begun to prepare a new MOS manual and other pertinent regulations, to revise all TOE's and TD's, and to procure the Specialist insignia. Subsequent unforeseen delays (the primary one being the unscheduled time required to resolve controversies on number and scope of MOS) caused a re-evalution of the 8 month preparatory phase. In January 1955 it was decided that 1 July 1955 would be the earliest practicable date on which these programs could be implemented. It was also decided at that time that a new enlisted personnel record system which was being developed would be initiated concurrently with the other programs.

New and revised regulations, revised TOE's and TD's reflecting NCO positions and the new MOS code, and the new Specialist insignia will be in the hands of unit commanders in sufficient time to accomplish all necessary preparatory actions prior to 1 July 1955. On 1 July and effective that date all personnel records will have been changed to the new records system. They will reflect the new MOS and appropriate ranks of the individual, including the Specialists who, as of that date, will commence wearing their new insignia.

Now that the development of the program has been traced, it is necessary to consider the major points of the program and their aspects con-

Order of Rank

1st —Master Sergeant
2d —Sergeant First Class
3d —Sergeant
4th —Corporal
5th —Master Specialist
6th —Specialist First Class
7th —Specialist Sec. Class
8th —Specialist Third Class
9th —Private First Class
10th —Private E2
11th —Private E1

Figure 2.

cerning the individual and the Army.

The separation of NCO's from Specialists will be made in the top four enlisted grades, and titles and abbreviations will be as shown in *Figure 1.*

NCO's will continue to be addressed as "Sergeant" or "Corporal" as appropriate, and the Specialist will be addressed as "Specialist"—for example, "Specialist Smith" or "Specialist First Class Smith."

Since one of the basic principles of the program is that the NCO's will again have the responsibilities and authority of command and leadership, they must be vested with rank over other enlisted personnel in order that they can fulfill their responsibilities. Accordingly, the order of rank among enlisted personnel after 1 July 1955 will be as shown in *Figure 2.*

Of all the points of the program, this order of rank has caused the most comment and concern. Actually, this concern, in practically all cases, is based on a misunderstanding of the program. Some personnel on staff jobs, for example, or in one of the Technical or Administrative services, may mistakenly believe that only combat leaders will be NCO's and everyone else will be Specialists. This is not the case; the primary criterion is leadership, not combat. The section leader and platoon sergeant in an Ordnance or Quartermaster unit is an NCO, just as is the tank commander and the platoon sergeant of a tank platoon. A few examples of NCO and Specialist positions illustrate this point. *Figure 3.*

In the conversion to the new system every effort is being made to identify each individual by his demonstrated qualifications in both his technical and/or administrative skills and his leadership ability. AR 615-15 prescribes that to qualify as a Noncommissioned Officer in the conversion an individual must be holding an NCO position, or must have held an NCO position for at least 2 months in his present pay grade. This last provision applies to those who are not in NCO positions at time of conversion. This last provision, which will apply to personnel in Specialist positions, in overstrength trainee, transient, patient or some otherwise undesignated status, will undoubtedly cause some overstrength and imbalance in the NCO ranks. It is planned that this overstrength or any imbalance will be adjusted by attrition and normal transfer under current policies, rather than by any crash action reassignment program.

Examples of NCO and Specialist Positions

	NCO	Specialists
E-7	Sergeant Major	Court Reporter
	First Sergeant	Chauffeur
	Platoon Sergeant	Food Service Specialist
	Operations Sergeant	Design Draftsman
	Chief Wardmaster	Interrogator
E-6	Squad Leader, Rifle Squad	Illustrator
	Tank Commander	Secretary Stenographer
	Supply Sergeant	Legal Clerk
	Mess Steward	Terrain Intelligence Analyst
	Motor Maintenance Sergeant	Medical Equipment Repairman
	Metal Working Foreman	Precision Machinist
E-5	Assistant Squad Leader, Rifle Squad	Stenographer
	Squad Leader of a MP Squad	Cook
	Communications Chief	Personnel Management Specialist
	Squad Leader of a Mortar Squad	Steam Shovel Operator
	Wire Team Chief	Radar Mechanic
		Tank Driver
E-4	Armored Car Commander	Wheel Vehicle Mechanic
	Labor Foreman	Radio Mechanic
	Ammunition Corporal	Company Administrative Clerk
	Assistant Squad Leader of an MP Squad	Armorer
	Squad Leader, Smoke Generator Squad	Intermediate Speed Radio Operator
	Rifleman	Track Vehicle Mechanic
		Administrative Clerk

Figure 3.

Pay Grade	NCO	Specialists
E-7	98%	2%
E-6	92%	8%
E-5	40%	60%
E-4	2%	98%

Figure 4.

As has been stated earlier, the separation of NCO's from Specialists is being made in the top four pay grades. Under this provision each individual will continue to receive pay, allowance, and retirement benefits accorded to the pay grade he holds regardless of whether he is an NCO or Specialist. As government housing is a benefit, the date of an individual's appointment in his current pay grade, whether NCO or Specialist, will be used for determining priority for assignment of quarters.

The matter of promotions, or appointments as they will be called in the future, can be explained best by first reviewing the following estimated breakout (*Figure 4.*) of NCO and Specialists in each pay grade which is based on a survey of all TOE and the number of units organized under each TOE:

Notice that practically all positions or MOS authorized pay grade E-7 and E-6 will be NCO's, whereas there will be very few Corporals. So, depending on the job and MOS which an individual holds, normal progression will be either from PFC to Specialist Third Class (E-4) to Sgt (E-5), or from PFC to Specialist Third Class (E-4) to Specialist 2nd Class (E-5) to Sergeant First Class (E-6). Of course there will be a few Corporals but in most cases a soldier will first become an NCO either as a Sergeant (40%) or as a Sergeant First Class (92%). Provision is made for personnel who are NCO's to be appointed as Specialists in the next higher pay grade; for example, from Sergeant (E-5) to Specialist 1st Class (E-6). However, such appointments will be exceptional, and usually will involve a change in MOS, since study of the New MOS Manual (AR 611-201) reveals that in most individual MOS's there is not a "Specialist" authorized in a pay grade higher than an NCO in that MOS.

One of the most noticeable effects to the NCO-Specialist program will be the great reduction in the number of NCO's. Currently about 62% of enlisted personnel in the Army are NCO's. After 1 July 1955 it is estimated the number will be about 17%. This is the overall figure, and is quite impressive; however, it will be even more so in individual units. For example, under current TOE, out of 106 enlisted men in a tank company, 85 are authorized to be NCO's. Under the new Tank Company TOE to be effective 1 July 1955 only 17 NCO's are authorized out of a total enlisted strength of 105.

This great reduction in the number of NCO's and their identification as leaders will result in the centralization of authority in the enlisted ranks, and will emphasize and clarify the responsibilities of NCO's. It can be expected that more attention will be paid in the future to the command responsibilities and authority of NCO's This point is emphasized in AR 615-15 as follows:

"The position of respect and leadership accorded the noncommissioned officer in the chain of command depends directly on the degree of authority and responsibility that he is allowed to exercise. The delegation of all authority and command prerogatives proper to the position is essential to the development of strong and capable noncommissioned officers. Maximum care must be taken to avoid usurping the authority of the noncommissioned officer as to do so will adversely affect his pride, spirit, ambition, and initiative, and will undermine the prestige upon which his effectiveness is dependent. Thus, in order to cultivate, establish, and maintain the prestige and authority properly due the position of the noncommissioned officer, commissioned officers are specifically charged with requiring of noncommissioned officers the exercise of all responsibility pertaining to their grade."

In recognition of increased attention to his responsibilities and in order that the prestige of the NCO is placed on a higher plane, certain prerogatives have been prescribed to him by regulation. Henceforth NCO's will be used only in supervisory positions. This, of course, has always been desirable, but due to the number of NCO's it was not feasible to execute in many units—note the tank company mentioned above. Under present conditions there are just too many NCO's and too few privates. So after the first July when a man makes NCO he knows that he will not have to pull KP or fatigue, but will be used only as an NCO in charge of such details.

In further recognition of the increased emphasis on the responsibilities and authority of the NCO, the regulation prescribes that "Noncommissioned officers will be granted such privileges as the organization and installation commanders are capable of granting and consider proper to enhance the prestige of noncommissioned officers." It follows that commanders will be able to provide more specific privileges to NCO's in the future than they have in the past because they will have fewer and the authority and rank of NCO's is more clearly defined.

In view of the exceptionally high degree of technical or administrative ability required, regulations prescribe that Master Specialists and Specialists First Class will be granted the identical privileges as the NCO's.

However, the granting of privileges to Specialists Second Class and Specialists Third Class is left to the discretion of the commander in the field who has always granted privileges to members of his unit commensurate with his capability and authority, in order to foster high morale and "esprit de corps." For example, membership in NCO clubs will be determined by the local commander.

The objective of the program is not to decrease privileges granted to Specialists, but rather to augment the privileges, prerogatives, and prestige accruing to the decreased number of noncommissioned officers.

The advent and development of nuclear warfare dictates greater dipersion on the battlefield and in all supporting echelons than ever before in history. Greater dispersion means more decentralization throughout the armed forces and greater responsibilities for each lower commander. Under these conditions the requirements for capable and energetic leadership in small units particularly grow with each new development.

Concurrent with leadership are those requirements for more technical ability to develop, maintain, and operate the complex equipment of the modern Army, and for more administrative ability to support and administer a widely dispersed Army organized into a myriad of types and numbers of units and formations.

The NCO-Specialist program was developed giving cognizance to these problems and as a step toward their solution and toward a vitalized Army. Henceforth, leadership is the primary responsibility of the noncommissioned officer; he is provided both with rank to fulfill it and with appropriate pay. Development of technical and/or administrative ability is the primary responsibility of the Specialist and he is provided with appropriate pay commensurate with his ability.

The selection of NCO's to fill leadership positions in a unit is largely decentralized to the small unit commander. Thus, it behooves the small unit commander to exercise considerable care in the selection and promotion of NCO's. The degree of success that this program ultimately attains will depend on the leadership qualities of those soldiers who wear the NCO chevrons.

"How would you do it?"

SITUATION:

Company B, 301st Reconnaissance Battalion, has been assigned the mission of securing the approaches to the village of EIGHTBURG from the north and northeast.

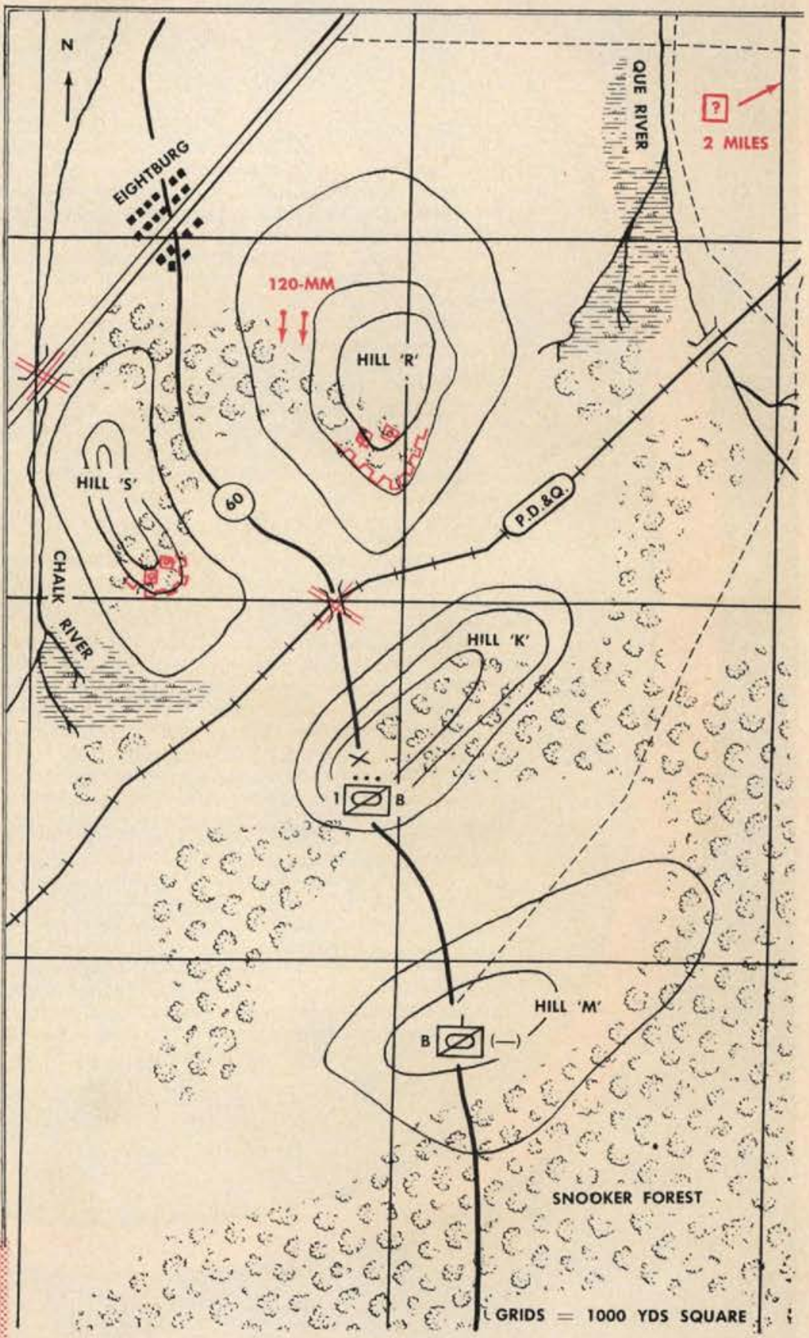
The battalion aviation section reports: (1) The enemy has established a roadblock at the crossing of Highway 60 and the P. D. & Q. Railroad; (2) the enemy strength at this roadblock is estimated to be: four 80-mm SP guns, one platoon of infantry, and two 120-mm mortars; (3) mechanized enemy activity has been observed approximately two miles east of the QUE RIVER; (4) the CHALK RIVER is unfordable; and (5) the bridge over the CHALK RIVER southwest of EIGHTBURG is blown.

Company B departed the battalion assembly area, advanced north on Highway 60, and has passed through SNOOKER FOREST, encountering light resistance. As the first platoon of Company B reaches point X on Hill K, it is subjected to mortar and tank fire.

PROBLEM:

If you were the company commander of Company B, what would you do?

HOW WOULD YOU DO IT?


N
EIGHTBURG
QUE RIVER
?
2 MILES
120-MM
HILL 'R'
HILL 'S'
60
P.D.&Q.
CHALK RIVER
HILL 'K'
X
1
B
HILL 'M'
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(—)
SNOOKER FOREST
GRIDS = 1000 YDS SQUARE

"How would you do it?"

solution

The company commander of Company B makes an estimate of the situation. From this estimate he determines that the company cannot by-pass the enemy to the west because of the CHALK RIVER. He further determines that the company cannot by-pass the enemy roadblock to the east without crossing open terrain west of the QUE RIVER. If the company crossed the QUE RIVER, it would become involved in a time-consuming maneuver. It would also risk becoming involved in a fight with the enemy east of the QUE RIVER, which would not contribute to the completion of its mission. Therefore, the best course of action to accomplish the assigned mission is to eliminate the roadblock and continue on to EIGHTBURG.

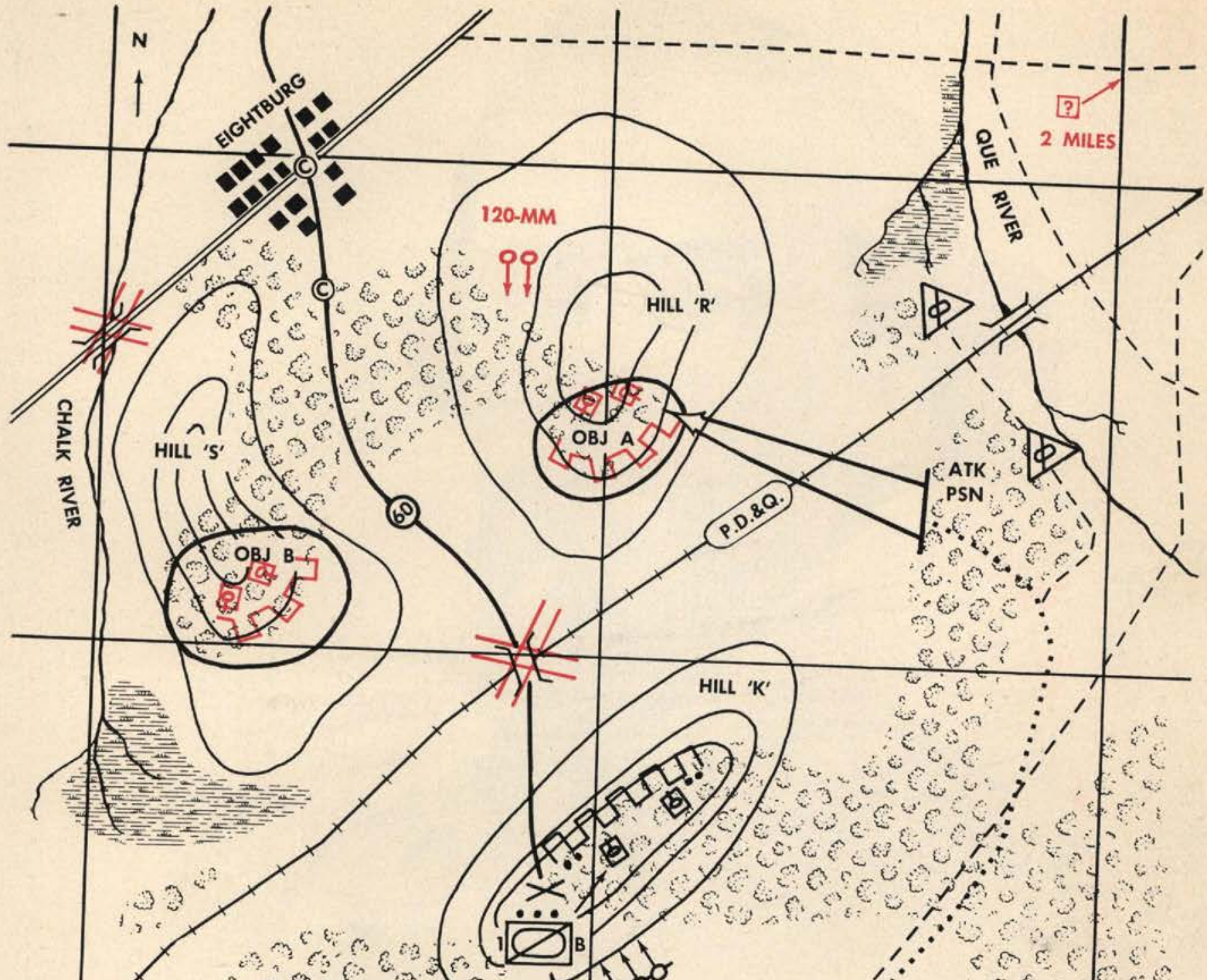
Having decided on a course of action, the company commander makes his plan and issues orders to his subordinates. He designates the enemy positions as OBJECTIVES A and B and selects an attack position for the maneuvering force. He orders the 1st Platoon to deploy along Hill K as the base of fire. The company (minus) will constitute the maneuvering force. The company mortars are placed in battery and used in the base of fire.

He orders the Scout Sections of the 2d and 3d Platoons to reconnoiter a route to the attack position, and to take up positions along the west side of QUE RIVER in the vicinity of the railroad bridge to provide security for the maneuvering force.

While the maneuvering force is moving to the attack position, the base of fire will engage OBJECTIVE A with its direct-fire weapons and OBJECTIVE B with its mortars. Smoke and WP will be included in these fires to deny observation to the enemy on OBJECTIVES A and B as well as to the observers for the 120-mm mortars. As the maneuvering force passes through the attack position, the direct-fire weapons, firing on OBJECTIVE A, stop using smoke and WP; however, the company mortars continue to smoke OBJECTIVE B to prevent enemy observation of the company maneuvering force from OBJECTIVE B.

As the maneuvering force closes on OBJECTIVE A, the direct fire of the base of fire is shifted from OBJECTIVE A to OBJECTIVE B, and the mortar fire is shifted from OBJECTIVE B to the 120-mm mortar position. At this time, the company mortars will be prepared to fire on the enemy route of withdrawal and the crossroads in EIGHTBURG to inflict casualties on any withdrawing enemy.

After OBJECTIVE A is taken, the maneuvering force will continue the attack, striking OBJECTIVE B on the flank and rear. Mopping up and clearing of the roadblock is conducted as rapidly as possible. The company reorganizes quickly, advances to EIGHTBURG, and takes up positions covering the roads north and northeast of EIGHTBURG.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SNOOKER FOREST
GRIDS = 1000 YDS SQUARE

ILLUSTRATED BY: PVT CHARLES S EDELSTEIN

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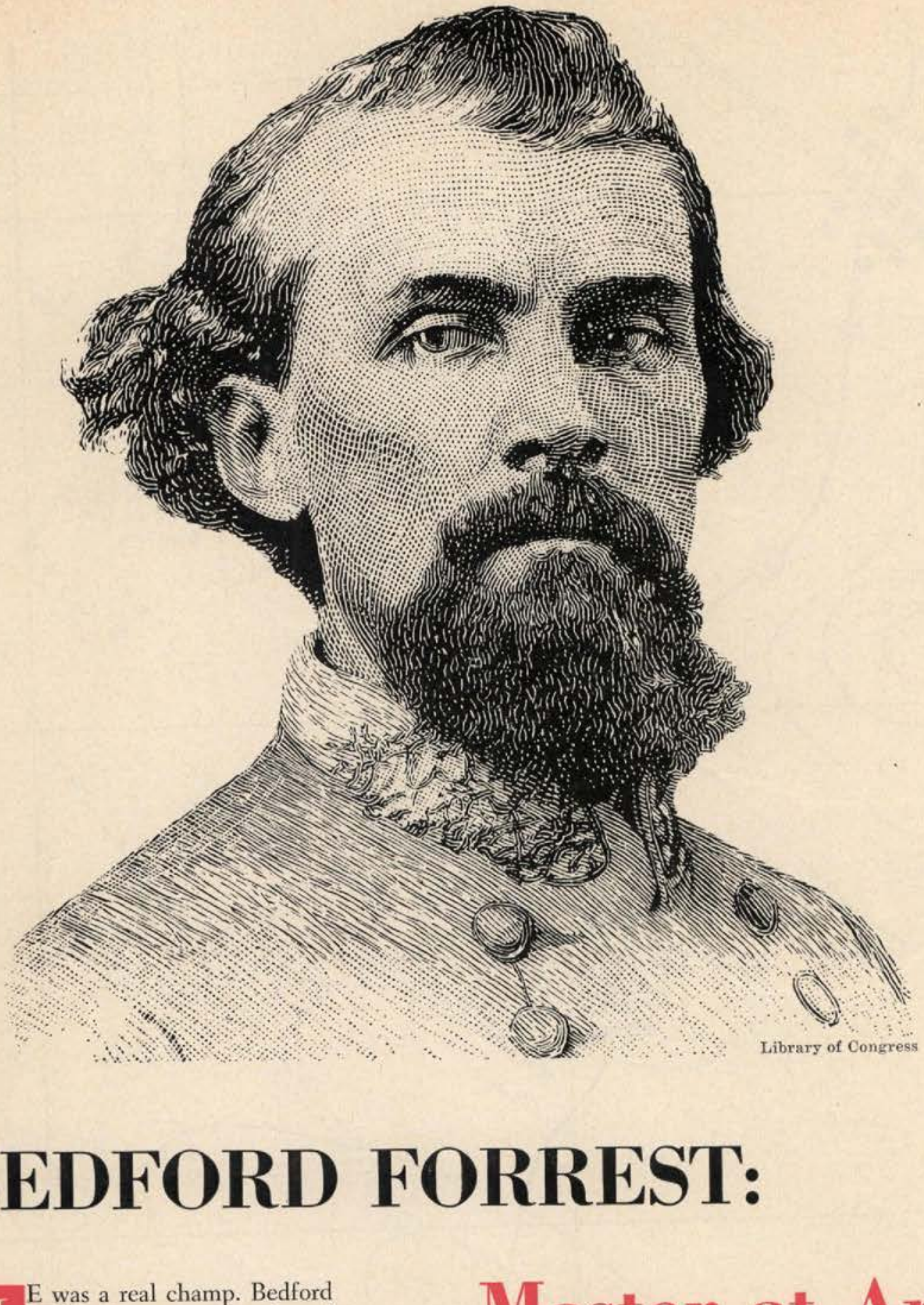

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BEDFORD FORREST:

Master at Arms

by JAC WELLER

HE was a real champ. Bedford Forrest's men thought of him as that so long as they lived. They said he could beat any man in either army. Any man in the world. He could shoot. He could ride. With his tremendous shoulders behind it, a sabre could take off a man's head. After four years the guys in blue thought so too.

Not since Richard the Lionhearted has any General done so much fighting himself. And Forrest had no suit of armor. More than thirty men fell by his own hands in the four years of the Civil War. He's not so well known as some of the Confederate commanders that fought in Virginia, but he knew more of weapons from personal experience than all of them combined.

Forrest's men were called cavalry. They rode to a scrap, but usually did their serious fighting on foot. General Forrest had original ideas about weapons and about fighting. At Fort Pillow, his sharpshooters picked off the Union officers from 400 yards away.

Forrest's men were armed in some ways like Indian fighters. Bedford was a son of the wilderness himself. He never had much schooling, but he knew all there was to know about weapons. At sixteen, he tracked down and killed a panther that sprang upon his mother as she returned on horseback to their little cabin. Before he could vote he fought four men in the public square of the village of Hernando, Mississippi. Three fell by his pistol and a knife; the last took to his heels.

Forrest, by the time of the war, was wealthy. He had more relative purchasing power after taxes than anyone has now. And he made it all himself. He wasn't born into the slave-holding Southern aristocracy. We'd call him a big time operator today. He bought and sold almost anything, including whole plantations complete with slaves. He enlisted as a private in the Confederate Army five days after his state seceded. The governor of Tennessee raised him in rank almost immediately to Lieutenant Colonel and sent him out to recruit his own battalion. Forrest's unusual approach to the whole subject of arms dates from this time.

In addition to raising volunteers, he had to arm and equip them. Neither the Tennessee nor the Confederate government was able to furnish much. Forrest took his own plantation wagons and mules, filled them in large part with his own supplies, and promised 45 of his slaves that if they served him faithfully as teamsters they would receive their freedom at the end of the war. All but one of these stayed with Forrest long after they could have easily deserted to the enemy.

Weapons were harder to obtain. Forrest purchased 500 Colt Navy revolvers in one single deal, with his personal funds, but was able to get little else of a uniform type. In the Mexican War a dozen years before, the American regular infantry had been armed with smoothbore flintlock muskets and bayonets. Our cavalry had sabres, muzzleloading single shot pistols, and percussion lock carbines. Neither the sidearms nor the shoulder weapons conformed to Forrest's ideas of weapons for real fighting. He wanted firepower at close range. He also wanted accuracy at long range. He did not attempt to get both qualities in the same arm.

Forrest kept the frontier idea of a sidearm always clearly in mind—a weapon to be used quickly and at close range. The revolver gave a man great short range power. He considered them perfect sidearms; he wanted each of his men to carry two if possible. Strange as it may seem to us today, the revolver had not been a complete success in the army before the war. Reasonably large numbers had been issued to special troops about the time of the Mexican War—the famous Walker and dragoon Colts. They had been both expensive and hard to maintain in the service. The U.S. Model 1855 pistol, a single shot muzzleloader, was the only hand firearm officially sanctioned in 1860.

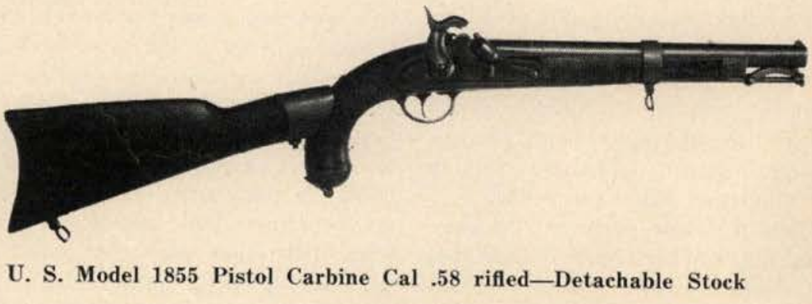
Forrest thought less than nothing of the sabre as a sidearm for his troopers. In the hand of a man of normal strength, used in the excitement of combat, it was likely to inflict only minor wounds. He didn't have his men carry them at all, though he did himself. His own sabre, a heavy weapon ground to razor sharpness, was in his hands a truly lethal arm because of his almost superhuman strength. But then so were other things. Once a man came up to him and shot him with a pistol at close range. Forrest seized the man's hand and pistol in his own tremendously powerful left hand, opened a pocket knife with his teeth, and killed him. On another occasion he saved his life by splitting a man's skull with a camp ax.

Even for his own use, Forrest preferred revolvers. As an alderman of the city of Memphis he had once taken a prisoner from a lynching mob of 2,000 men and then dispersed them with two Navy Colts and a Bowie knife. The revolver was powerful both actually and psychologically at close quarters. His fast and accurate shooting with them saved his life both before and during the war.

Forrest, however, realized completely the limitations of the revolver. Its maximum effective range, particularly when used mounted, wasn't more than 25 yards. He wanted every man to carry a shoulder arm also. At first Forrest couldn't get enough rifles of precision and long range. Even as late as Shiloh in April of 1862 his regiment, save for his sharpshooters, was mainly armed with sawed-off double-barreled shotguns. In their attack on Sherman's pursuing column after the battle, they paused at close range, fired both barrels loaded with buckshot, and went on in with revolvers. They were

Colt Navy Revolver .36 Cal

Colt Army Revolver .45 Cal


U. S. Model 1855 Pistol Carbine Cal .58 rifled—Detachable Stock

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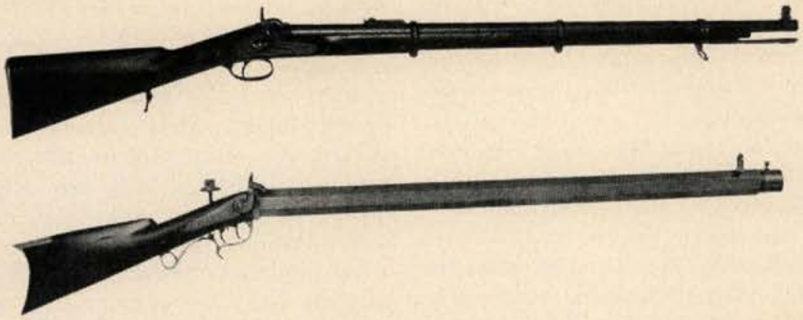
MR. JAC WELLER, a specialist and prolific writer in the fields of the Revolutionary and Civil Wars, is a firearms consultant and engineer with several years experience in ordnance and munitions production. He resides at Princeton, New Jersey. Photos courtesy of author.

most effective, to say the least.



Top—English-made Confederate Whitworth Rifle

Bottom—Union Berdan-type false muzzle Rifle

These were the most ornate weapons used by Civil War Sharpshooters

The whole subject of precise fire at long range underwent a tremendous change in the early days of the Civil War. Until after the Mexican War the smoothbore musket more than held its own against the rifle for military use. The musket was quicker and easier to load. Even more important, it would fire many more rounds before it had to be cleaned. The United States forces used rifles against Mexico to a limited extent only. Colonel Jefferson Davis' regiment of Mississippi volunteers was armed with rifles. These were muzzleloaders, but fired by percussion caps rather than the stream of sparks from flint and steel directed into a pan of loose powder. Their bores had seven relatively deep spiral grooves. A round lead ball covered with a cloth patch was pushed down the barrel on top of the powder charge. The tight fitting ball followed the rifling on the way out and spun in the air. Up to about 200 yards a rifle of this type, called the Mississippi after the first men to use them, would shoot very well indeed. The smoothbore muskets had an accurate range of less than 40 yards; they weren't even equipped with a rear sight.

However, all the patched ball rifles took time and care to load. The black powder fouling collected in the grooves, causing trouble in the ramming down of the bullets. After a relatively few shots the volunteer couldn't load his rifle, even if he left off the patch. The regular infantryman could continue to load and fire his less precise but more trustworthy smoothbore to the end of a battle.

Forrest knew all about these problems first hand. He was good with a rifle too. At Fort Donelson, the first big fight his outfit was in, he took a rifle from one of his men and brought headlong out of a tree a troublesome Union sharpshooter. Forrest knew from personal experience the relative advantages of the rifle and the old smoothbores. He was among the first to appreciate a French invention that swept the world.

Colonel Minie perfected an elongated bullet with a hollow base that would load easily because it was considerably under bore size. No patch was needed. With the explosion of the powder charge, the bullet expanded to fill the grooves. The Minie rifle was as simple and fast to load as the smoothbore musket. Further, it tended to clean out its own fouling by sweeping out the grooves with each shot. Even more important, the elongated bullet maintained its velocity and accuracy better at long range. The new Minie rifle was effective against large targets at 1,000 yards.

Early in the war most Union and Confederate cavalry commanders were feverishly trying to get carbines for their men, Forrest was accumulating the new Minie rifles. He preferred the .5777 cal. Enfield musketoon from England. This rifle was one of the most accurate of its day. It will still shoot consistently into a man-sized target at 200 yards and through three inches of oak at 1,000 yards. The 26 inch barrel was long enough for accuracy, but not so long as to be unhandy on horseback. There weren't enough of these, however. Forrest took any other Minie rifles that were reasonably similar. He preferred to avoid where possible both the regular short-barreled cavalry carbine which was at a disadvantage for fighting on foot and the long infantry rifle which was too clumsy to carry easily on horseback. His sharpshooters sometimes had special imported rifles with telescopic sights, such as the British Whitworth. This will shoot near possibles at 1,000 yards even today.

Perhaps the most remarkable compliment paid to Forrest's weapons sense during the war was from the Union general, William Sooy Smith, after Forrest had beaten him soundly at Okolona in February of 1864. He said that the Enfield and Austrian rifles in the hands of Forrest's men had given the Southerners a great advantage over his troopers. At this time the Union cavalry were armed with the most modern type breechloading carbines, some of them repeaters. It wasn't the weapons. It was the way they were used.

The Enfield and Austrian muzzleloaders would have been hopelessly outclassed at 50 yards. At that time breechloaders weren't strong enough to stand full infantry power loads, although they could be fired much more rapidly. Forrest adjusted his tactics to his weapons. At reasonably long range the Minie rifles were more powerful and accurate.

Forrest had a reputation for dash and attack, but he was extremely careful of the lives of his men. One way of conserving these was to use to the utmost any advantages he had in weapons and training. The veteran Confederate troopers either fought on foot with their Minie rifles at reasonably long range or went in to attack at close quarters with their revolvers.

Throughout the entire war, Forrest managed to have artillery in some form with him almost constantly. At first any gun at all was satisfactory. He fought by ear, as he called it. He knew a lot about sidearms and shoulder weapons when he joined the army. He didn't know anything about artillery, save that he liked to have it around. One day a young officer showed him a Confederate manual on artillery. A week later he had practically memorized it. There were no better trained and equipped batteries in the Confederate army. Forrest wasn't strong on spit and polish, but he believed in the right kind of drill. He made sure that his gunners got plenty of it. He spared no pains in providing his guns with the best in horses so that they could keep up and be there when needed. He kept his batteries directly under his own command. They were really part of the cavalry instead of units of a separate service.

Even in pursuit of Streight's raiders, Forrest somehow kept the guns with him. A Union column of 2,000 mounted men had a way cleared for them across the border in April of 1863. With a 36 hour start they were heading for the Confederate munition centers in Georgia. Forrest, relatively unknown outside the Western Army, was in pursuit. He quickly caught up but his force was inferior.

All across Alabama they fought; it lasted for eight days and 180 miles in all. The Union soldiers were able and well commanded. They turned to attack their pursuers. They set ambushes. Somehow Forrest kept the pressure on; his field guns were in the thick of the fighting. Their presence in the very front of the pursuit was probably the final determining factor in the Federal surrender. Forrest's capture of more than 1,600 men with less than 600 of his own, this epic running fight with its dramatic conclusion made his name overnight a watchword throughout the South. He had kept his guns when Streight had abandoned his.

Practically all cannon used in the Civil War were muzzleloaders. At first in the West they were mostly bronze smoothbores. The rifling of the bore and the use of elongated projectiles, although used to a considerable extent, were not nearly so successful in field guns as in shoulder weapons. By the end of the war, a bronze smoothbore gun known as the Napoleon was the most used piece on both sides. Although not so accurate or so long ranged as the rifled steel guns, it was better in close. At 700 yards or less, grape and canister were discharged more uniformly and at higher velocity from the Napoleon. If you want to fire a charge of either buck shot or bird shot—roughly the small arms equivalent of grape and canister—you use a smoothbore shotgun, not a sporting rifle.

12-Pounder Light Gun U. S. Model 1857 called the Napoleon

Captain Freeman was Forrest's first battery commander. He loved best the 12-pounder howitzers, light smoothbore brass guns capable of firing shrapnel shells as well as full charges of grape and canister. They were frequently employed at the very closest ranges with double charges of canister—that is two tin cans of musket balls, one on top of the other. From the middle of the war on, however, a change came over Forrest's artillery, occasioned in part by the death of Freeman and his replacement by a superbly talented young gunner, Captain John Morton.

Forrest captured two 3-inch steel Rodman rifles in West Tennessee in 1862. Two more were captured later. In Morton's hands these Rodmans were extremely accurate even at ranges of 2,000 yards. Long range power and accuracy were important to Forrest. Sometimes he had to fight Union gunboats patrolling the Tennessee, Cumberland, and Mississippi rivers. At various times, he captured or sank more than a dozen of them.

These four Rodmans performed astonishingly well against land targets also; much better than any other Confederate field rifles. Part of the reason for this was that Forrest captured a large part of his ordnance supplies from the Union including almost all his field artillery ammunition. The Northern time fuses worked far more consistently and positively than those made in the South. According to observers on both sides, Morton's pieces at Brice's Crossroads seemed to burst almost every shell right on its target.

Further, Morton's rifles seemed to perform better with canister. One reason for this was undoubtedly the training and efficiency of the gun crews. Good men will always make their equipment seem better than it really is. Another reason was that Forrest and Morton frequently employed these pieces at such close range that the double charges didn't have a chance to spread out unevenly or "cart-wheel."

True to his own personality, Forrest himself became a first rate gunner. He could handle any position in a gun crew. In the Johnsonville fight he directed one gun so well that it sank a gunboat as well as contributing to the complete destruction of a Union supply depot across the Cumberland from the Confederate position.

Forrest's main weapons contribution, however, wasn't in relation to any one arm though he and his men were experts with each. It wasn't even the adapting of arms usually employed by infantry to cavalry fighting. His unique innovation was the combining of all arms into a weapons team. This aspect of Forrest has been studied most carefully by military men from across the sea. In World War I, high European staff officers knew more of Forrest than our own regular army officers did.

A lot of different weapons in a single force, except through necessity, used to be unusual. Forrest made it a source of power. His sharpshooters with their slow-loading but accurate long range rifles complemented the line "infantry" with their standard Minie rifles. The revolvers and shotguns gave short range punch. The artillery was always a part of the team at any range. The horses gave the whole force extreme relative mobility.

When Forrest fought, he gained as much as possible from artillery Minie rifle fire at medium range. Then he went in close where the sidearms his men carried and their natural skill at using them could count. Where possible his frontal attack was coordinated with a smaller one upon the enemy's flank and rear. He called it "hitting 'em on the end." Forrest kept control of everything. He was right up front. He led his charges himself. It's a miracle that he survived. Twenty-nine horses were killed under him during the war. Although wounded seriously four times, he was seldom away from his command.

When the madness of battle settled upon him he was an awesome sight. He was well over six feet tall and usually mounted on a large horse. His face became the color of heated bronze. His spirit matched his appearance; on occasion he shot down instantly his own men who lost their courage. When Old Bedford led a charge he wasn't there just to inspire; he fought. At close range his blazing revolvers and flashing sabre were the most dangerous of weapons.

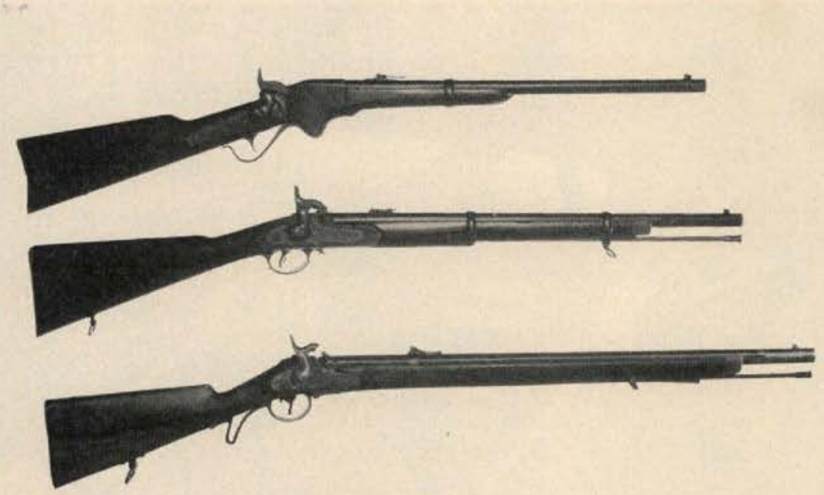
Through it all, however, Forrest kept his head. He carried through his plans as relentlessly as he fought. His own physical frenzy didn't hurt his judgment. If necessary he could change the objectives of his entire team in a very short time. He possessed battlefield control to an extremely high degree.

A particular aspect of this teamwork was the part played by artillery. From the initial stages of his battles to the final pursuit the guns were in the thick of the fight. Forrest took his field pieces where other commanders couldn't. He had them moved forward recklessly, even in front of the troops that they were supporting. At Parker's Crossroads, Morton fought his guns closer to the enemy than to his own support.

The presence of artillery in Forrest's long raids into enemy-held territory as in his pursuit of Streight's raiders gave power. Fortifications such as Union blockhouses, impervious to cavalry and infantry alone, fell quickly. In the middle Tennessee raid in the summer of 1864 he encountered elaborate structures heavily garrisoned and well supplied with everything including artillery. A few shells from Morton's rifles soon knocked apart the heavy pine timbers. They could penetrate easily two layers of logs and explode inside. Surrender came quickly. The railroad bridges and supply depots the blockhouses defended could then be destroyed at leisure. On this raid Forrest took more prisoners than he had men in his own command.

The best example of Forrest's team use of weapons is also his greatest victory, Brice's Crossroads in June of 1864. He had been retreating before a Union army composed of beautifully equipped infantry, cavalry, and artillery, in all more than twice as numerous as his command. Suddenly, very early in the morning, he turned on them. The Rebs got an advantage, a bulge as Forrest called it, and kept it all through the sweltering day. The Union commanders were forced to feed into the battle their reinforcements as they came up, piecemeal. Forrest ground up the enemy cavalry as it arrived in an infantry and artillery fire fight, interrupted occasionally by a sudden and furious charge to close quarters.

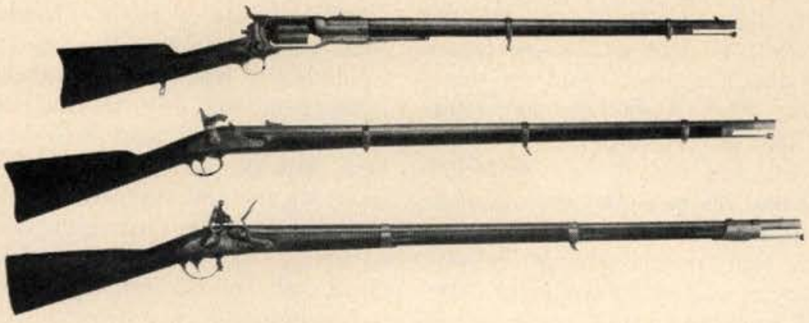
When the Union infantry started to arrive about noon, after moving at the double under a pitiless Mississippi summer sun, Forrest attacked from front and flank. At close quarters revolvers were better than bayonets. The double-barreled shotguns loaded with buckshot were also effective. In all this fighting Forrest



Top—Union Repeating Spencer Carbine

Middle—Enfield Short Rifle or Musketoon

Bottom—Austrian Short Rifle, Jaeger—Model



Top—Infantry Model Colt Revolving Rifle
Middle—U. S. Model 1863 Springfield Percussion Rifle
Bottom—Mexican War Smoothbore Flintlock Musket, U. S.

personally took an active part, but kept the larger problem always in mind. He had to beat each regiment and brigade of the enemy as it came up along a single country road. Somehow he managed to have some comparatively fresh men in each new attack. A small body of reinforcements here; a new battery just arrived there; finally, the men who had been holding the horses earlier in the battle. Forrest kept the pressure on and kept his bulge. When the enemy started to give way and fall back Forrest remounted his troopers and went after the enemy all night and all the next day. His artillery, after fighting for hours, was in the very first rank of the Confederate pursuit. Shells were thrown at intervals into the retreating Union forces. A hail of fire stopped every counterattack. The Federal loss in men of about 2,250 was almost two-thirds of the Confederate force actively engaged on the field. Forrest captured every gun, wagon, and ambulance the enemy had, together with enough ammunition to last him quite a while.

Another example of Forrest's superb ability at arms coordination was the taking of Fort Pillow on the Mississippi. It was strongly garrisoned, well laid out, and heavily constructed. Its situation high on a bluff, where the only navigable channel passed close to the East shore, gave its guns command of the river. This was a real fort, not just a blockhouse. Field artillery could scarcely damage it. It contained more than 600 Union troops which was almost as many as the so-called cavalry that Forrest had directly at hand to take it. There was even a Union gunboat in the river ready to give its aid.

Forrest's preliminary reconnaissance showed him how it was possible for some of his sharpshooters to work their way to the tops of two little hillocks slightly above and about 400 yards from the fort. These fellows shot more than half the officers in the fort in a matter of a few minutes and caused the entire garrison to take shelter. The parapets were so thick to protect against artillery that the defenders couldn't take aim at the Rebs on the two hillocks without exposing themselves dangerously.

As soon as the sharpshooters had their bulge, they began to creep forward to other points of vantage as close as 150 yards from the fort. Ultimately about fifty of them were in positions of their own choosing, frequently behind stumps or fallen trees, with their ammunition ready beside them. They had complete fire ascendancy over the fort. The more courageous defenders who got up to take a shot fell back pierced by as many as four Confederate bullets. Forrest ordered the advance of his troopers, but at a walk and so as not to mask any of his sharpshooters. They reached the wide deep ditch surrounding the fort proper without a casualty. The sharpshooters were covering them perfectly. The attackers avoided the muzzles of the fort guns; they helped each other down into the ditch and up the other side. They paused just under the outside edge of the parapet to consolidate and get their breath. Not one of them had fired a shot.

At a word of command, they rose up, weapons in hand, and opened a withering fire on the defenders inside. The fort was quickly taken by assault and at surprisingly small cost to the attackers. The garrison which survived fled down the bluff to the river where, according to arrangements between the fort commander and the gunboat, they were to continue the fight with the aid of the navy's guns. Forrest had posted another force of sharpshooters to take care of a situation like this. Although the gunboat was at canister range, when she opened her ports to fire, the sharpshooters shot her gunners. There was an unfortunate incident under the bluff near the river, which led to a Congressional investigation. Apparently some Union soldiers wanted to surrender while others, still counting on help from the gunboat, wanted to continue to fight.

Ultimately, Forrest had almost as much influence upon the Union cavalry in the West as he did upon his own. In 1861 the Confederate troopers furnished their own horses, which were likely to be fine animals. Generally, Western Southerners had been accustomed to the use of firearms both on foot and on horseback since boyhood. Forrest armed these men after his own fashion and made them into a team. At first the Northern troopers didn't even have proper horses. The massive animals from Pennsylvania farms weren't much good in campaigns in Mississippi. The Union cavalry lacked weapons coordination. Although the individual arms were usually better and always more numerous than those in the hands of the Southerners, they didn't fit so well into a team.

Do you remember the regular cavalry in 1860? They had sabres, single shot muzzle loading pistols, a few revolvers, and several types of percussion carbines, both breech and muzzle loading. The tremendously expanded Union cavalry forces had these weapons as a nucleus. What had been satisfactory for fighting Mexican volunteers and Indians in the West definitely didn't work against men like Forrest. Urgent requisitions were sent in for revolvers and carbines. During the war the Union ordnance department issued many different revolvers and went crazy in relation to carbines. All told more than sixty different types were given to the Federal troopers. Dozens of different kinds of ammunition were required. Most of these weapons were breechloaders which needed not only a special linen, paper, or metal cartridge but also a percussion cap as well.

As already pointed out, a breechloader at this time was not so strong as a muzzleloader and was inferior to it in range and power, although greatly superior in rapidity of fire. The ethusiasm for the new carbines was at first very great indeed. After Okolona, however, General Smith's remarks about Forrest's Enfields and Austrians were taken seriously. Even before that an effort had been made to arm the Union cavalry in the West with the long Colt revolving infantry rifles. These, it was thought, would not only combat the range and power of the Confederate rifles but give rapidity of fire similar to a revolver. Mechanical problems, fundamentally unsolved in the arm itself, proved its downfall.

Another attempt to combat Forrest's weapons tactics by changes in arms alone was the issue to whole battalions of Union cavalry of the long Springfield muzzleloading infantry rifle. Some units tried to use these weapons while mounted, with fantastic results. A Union trooper only a few weeks away from his city desk, on an unfamiliar horse, couldn't fire accurately a rifle with a 39 inch barrel and lots of recoil. Even in this grim and bloody war, the picture seemed a bit humorous. Reloading mounted would have meant almost sure loss of the ramrod, if not the rifle and ammunition pouch also.

However, along with the efforts that failed, there was an irresistible tide of progress in the Union mounted troops. In Virginia Sheridan was forming hard hitting brigades and divisions of veteran troopers. In the West the supreme cavalry command was finally given to a young West Point general from Delaware, James H. Wilson. By the end of 1864 he had satisfactory horses. He also had men capable of riding them. They could fight too, either on foot or on horseback. They may have lacked some of the dash of Forrest and his men, but they were infinitely better subsisted. Horses and men were, on the average, heavier, stronger, and better equipped. They had better weapons.

They had learned much from Forrest in the matter of arms and the using of them. The Union cavalry still carried their sabres so long as they didn't get in the way; the veterans among them preferred their excellent Colt .45 Army revolvers. In the final months in the West almost every trooper had a Spencer repeating carbine firing metallic cartridges like we use today. With this arm six or eight times as many aimed shots could be fired as with a muzzleloading Enfield. The Spencer was reasonably powerful and accurate. The blue cavalry was now tough in a fire fight. They got off their horses as quickly as Forrest's men, if they sensed a real scrap. They brought along their artillery wherever they went.

Even in the matter of sharpshooters, the Union cavalry had improved. They were now specially picked for their jobs and had the right arms. Among the quick firing Spencers, there were the slower, more accurate, and more powerful Enfields and Sharps; occasionally, there was a big Berdan rifle that would have been greeted with derision in the hands of a mounted man in 1861.

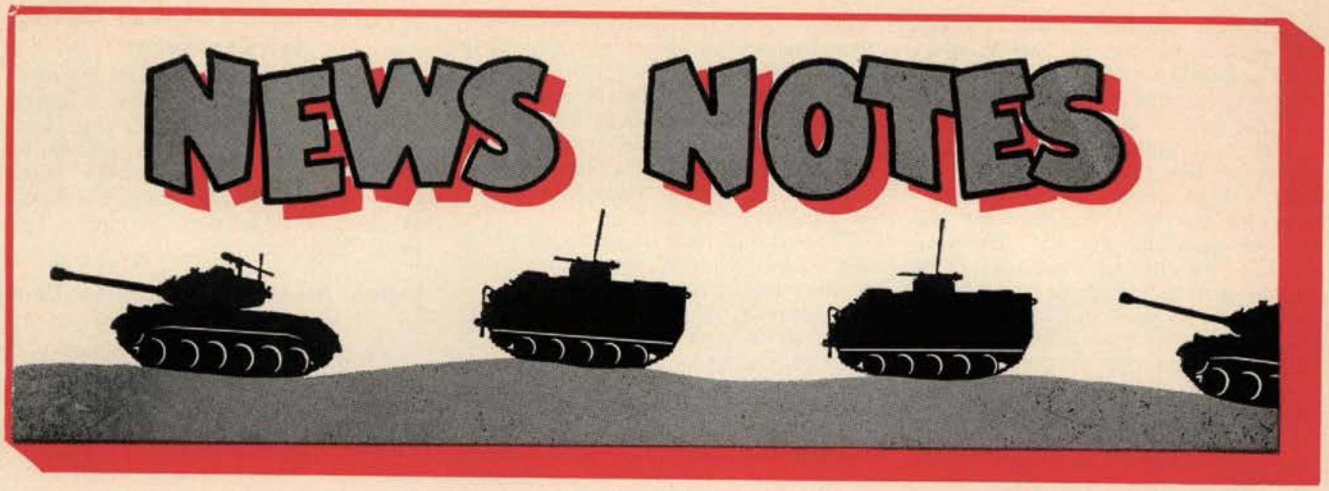
The first time that Forrest met Wilson and his new command in major combat was after the disastrous Confederate defeat at Nashville. Forrest, not at the battle himself, cut across country with his brigades to protect the routed Southern army from Wilson's pursuit. Almost continuously for ten days and nights the two cavalry commands fought desperately in sleet and frozen mud. Somehow Forrest managed to protect the defeated army and get out every wagon and gun intrusted to him, though a great deal had been lost before he arrived. In addition to personally commanding the rearguard, he acted as chief of staff for the whole Confederate force.

But the days of the Confederacy were numbered. By the time the Confederates reached the south side of the Tennessee, 1865 was dawning. Forrest's men still held their heads high, but the realists among them could see the end approaching. Wilson's troopers were turning the tables on them. The blue troopers had full ranks, full bellies, and superb arms and ammunition. The two commands met again in April in another running fight culminating in the battle for Selma. Wilson's men were victorious on foot and on horseback. But Forrest and most of his men got away.

In this action, Forrest, now a lieutenant general, was cut off by six Union troopers bent on killing or capturing him. Alone, his eyes blazing as of old, he charged with revolver and sabre. Without sleep for days, his reflexes were as sharp as ever with his revolvers. The sabre in his tremendously powerful left hand was as deadly. He beat them and came off under his own power, though he and his horse were covered with their own blood.

Forrest in personal combat has no rival in modern commanders. As a General, his opportunities were never large enough for him to have saved the Confederacy. But his contribution in weapons organization and teamwork, as well as common sense selection of arms for his particular fighting, was very great indeed. His enemies paid him the great compliment of imitation.

Of the 32 Confederate Lieutenant Generals and full Generals, 29 were professional officers from West Point. The 30th and 31st were Richard Taylor, the son of President Zachary Taylor, and Wade Hampton, the fabulously wealthy and politically powerful South Carolina seigneur. The last was Bedford Forrest who had been to school three months in his life. He eternally refutes the principle that only professional officers can command armies, yet his common sense approach to weapons and their use in an integrated team is what all professional schools try to teach. In their personal use, he was indeed the champion.



Simulated Blasts

The largest laboratory device yet developed for simulating the blasts from bombs has been designed at Armour Research Foundation of Illinois Institute of Technology, Chicago.

The instrument—called a "shock tube"—allows engineers to study the effects of blasts without actually exploding a bomb.

The new shock tube, which has a 6-foot diameter, is considerably larger than any others developed in the country, according to Arne H. Wiedermann, associate engineer in the Foundation's propulsion and structural research department.

He explained that the new tube's significance lies in the fact that it enables scientists to study blast effects on larger-scale models of buildings which might be exposed to blasts.

The tube, which has been constructed in Gary, Ind., for the Air Force, has an over-all length of 150 feet. It already has been tested and is being put into use for model testing.

In order to get different shock wave pressures and durations, the tube was provided with interchangeable sections of varying lengths.

To absorb the maximum recoil force of 600,000 pounds, the foundation of the tube was designed as a slab of reinforced concrete 10 feet wide, 3 to 4 feet thick, and 100 feet long with keys 10 feet wide and 6 feet deep spaced 20 feet apart.

Here's how a shock tube is used as a laboratory instrument for generating controlled shock waves.

A certain amount of combustible gas is introduced into one section of the tube and is confined by a light diaphragm. The diaphragm is shattered when the gas is ignited, and the released pressure wave travels down the tube to the test section, where a building model has been placed. The resulting forces are recorded with electronic equipment.

Development of shock tubes stems from the fact that actual bomb tests are expensive, and it also is difficult to control the conditions under which they are conducted, said Wiedermann. Laboratory tests, he added, can be performed much more efficiently and over a much wider range of target items.

The testing of structures is aimed at answering two questions, Wiedermann explained. First, what forces on a building result from the bomb explosion? Second, how does the building react to the forces?

The Lightweight Rifle System

The Department of the Army recently announced the conduct of a troop test of the new lightweight rifle system.

The test is to take place in the arctic, tropics and most sections of the United States. Units participating in the test include the 4th Infantry Regiment, Ladd Air Force Base, Alaska; 33rd Infantry Regiment, Fort Kobbe, Canal Zone; 69th Infantry Training Division at Fort Dix, New Jersey, and the 503rd Airborne Infantry Regiment, Fort Campbell, Kentucky. All service schools are participating in this test.

Since the latter part of World War II, the Army has been developing new

TOP COMMAND CHANGES

General Maxwell D. Taylor
Chief of Staff

General Williston B. Palmer
Vice Chief of Staff

General Lyman L. Lemnitzer
Far East Commander

type rifles in an effort to have one type rifle replace its current four shoulder-fired weapons, the M-1 rifle, the Browning automatic rifle, the carbine and sub-machine gun.

The new lightweight rifle system consists of one rifle made in two variants: a light barrel rifle as a replacement for the M-1, carbine, and sub-machine gun, and the same rifle with a heavier barrel to take the place of the Browning Automatic Rifle (BAR). Both are capable of semi and full automatic fire as desired by the soldier.

The troop test is to determine the advantages of the new system over the standard weapons and to determine if the new system will give sufficient advantage to justify its adoption.

Areas in which the new system should show advantage are:

1. Greater fire power for the Infantry.
2. A better individual rifle and automatic rifle for the Infantry.
3. Reduction in training time.
4. Simplification in maintenance.
5. Simplification and reduction of logistical problems.

Of the several rifles which were originally considered, two models are currently undergoing tests. One is the T48, developed by a Belgian firm; the other is the T44, developed by U. S. Army Ordnance. Concurrently with the troop test, Army test agencies will be conducting additional tests of the rifles being considered, to determine which is most suitable. The final decision as to the selection of a rifle will be based on the results of all tests.

This rifle, as are all others representing this system, is designed to fire the 7.62mm NATO standard round recently standardized by the NATO nations. The round, developed by U. S. Army Ordnance, is a caliber .30 rifle type cartridge, shorter and lighter than the present standard round but with equal battlefield effectiveness.

Tests were conducted in Alaska this winter to determine effectiveness of the new system of rifles in extreme cold and snow and the difficulties of using the new rifles while wearing bulky arctic clothing.

The tests in Panama are to determine the performance in jungle and tropic weather conditions.

The tests at Fort Campbell, Kentucky are to explore the employment of the new system by Airborne troops and the weapon reaction in temperate weather conditions in field use.

The tests at Fort Dix, New Jersey are designed to determine the suitability of the new system for recruit training.

The service schools will each investigate the suitability of the new system of weapons for use within their respective branches.

Second Armored Association Reunion

There will be a reunion of the 2d Armored Division Association in New York City at Hotel New Yorker on September 2, 3, and 4. For reservations and further information, write Colonel R. F. Perry, Secretary, 2d Armored Division, Association, P. O. Box 172, Alexandria, Virginia.

Sixth Armored Division Association Convention

Combat veterans of the famous Sixth Armored Division will hold their 8th Annual Reunion on September 1-2-3, 1955, Hotel Sheraton-Gibson, in Cincinnati, Ohio. The Cincinnati chapter of the Sixth Armored Division Association will serve as official reunion host. All former "Super Sixth" officers and men are invited to attend the reunion. For information write Association Secretary Edward Reed, P. O. Box 492, Louisville 1, Kentucky.

Seventh Armored Division Association Convention

The Seventh Armored Division (Lucky Seventh) Association is having its Ninth Annual Reunion at the Hotel Roosevelt, New Orleans, Louisiana, on August 19, 20, and 21, 1955. Interested parties should contact Johnnie Walker, 335 Johnson Avenue, Teaneck, New Jersey.

Eighth Armored Association Convention and History

The Eighth Armored Division Association will hold its sixth annual reunion July 1, 2, 3, 1955 at the Sheraton-Park Hotel in Washington, D. C. Further information may be obtained from Exec-Dir. Henry B. Rothenberg, Suite 1300, 134 N. La Salle St., Chicago 2, Ill.

The Association also wishes to announce that a fine History of the Division has been written and will be published as soon as funds are available. Former members are urged to send $5.00 to the Association on a pre-publication subscription basis. Should publication not be achieved the $5.00 will be returned. The History will run an estimated 250 pages including some 80 pages of pictures.

Spearhead Division to Europe

The 3d Armored Division is going Gyroscope.

Department of the Army announced recently that the famed Fort Knox Spearhead Division will be part of the new look in the Army called Operation Gyroscope, a name chosen to illustrate the Army's new plan of rotating entire Army combat units on a fixed schedule between home and overseas bases.

Gyroscope volunteers will remain with the unit while it's at home, go overseas, and return with the unit.

The 3d Armored Division is tentatively set for rotation to the European Theater in May of 1956.

TOP COMMAND CHANGES

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Deputy Chief of Staff for Logistics

Maj. Gen. William S. Biddle
Far East

Maj. Gen. Robert L. Howze
CG 1st Armored Division

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AMERICAN MILITARY POLICY:

Its Development Since 1775

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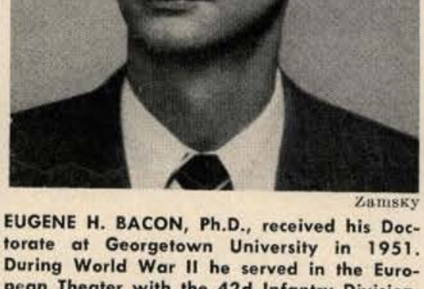
but not at the expense of our national security."

The Authors

U. S. Army

C. JOSEPH BERNARDO, Ph.D., received his Doctorate at Georgetown University in 1950. He is lecturer on Military Policy of the United States at the University of Maryland. He is presently on active duty at The Ordnance School at Aberdeen Proving Grounds, Md.



Zamsky

EUGENE H. BACON, Ph.D., received his Doctorate at Georgetown University in 1951. During World War II he served in the European Theater with the 42d Infantry Division. He is presently an Instructor in American History at Georgetown University, Washington.

The Reviewer

Rembrandt

RAYMOND L. GARTHOFF, Ph.D., received his Doctorate at Yale University. Author of the well-known book, "Soviet Military Doctrine," and a specialist on Soviet Affairs, he has been a member of The Rand Corporation since 1950. He resides in Washington, D. C.

Feature Reviews
Exclusive with
ARMOR

AMERICAN MILITARY POLICY: ITS DEVELOPMENT SINCE 1775. By C. J. Bernardo and E. H. Bacon. The Military Service Publishing Co., Harrisburg, 1955. 493 pp. $5.00.

Reviewed by
DR. RAYMOND L. GARTHOFF

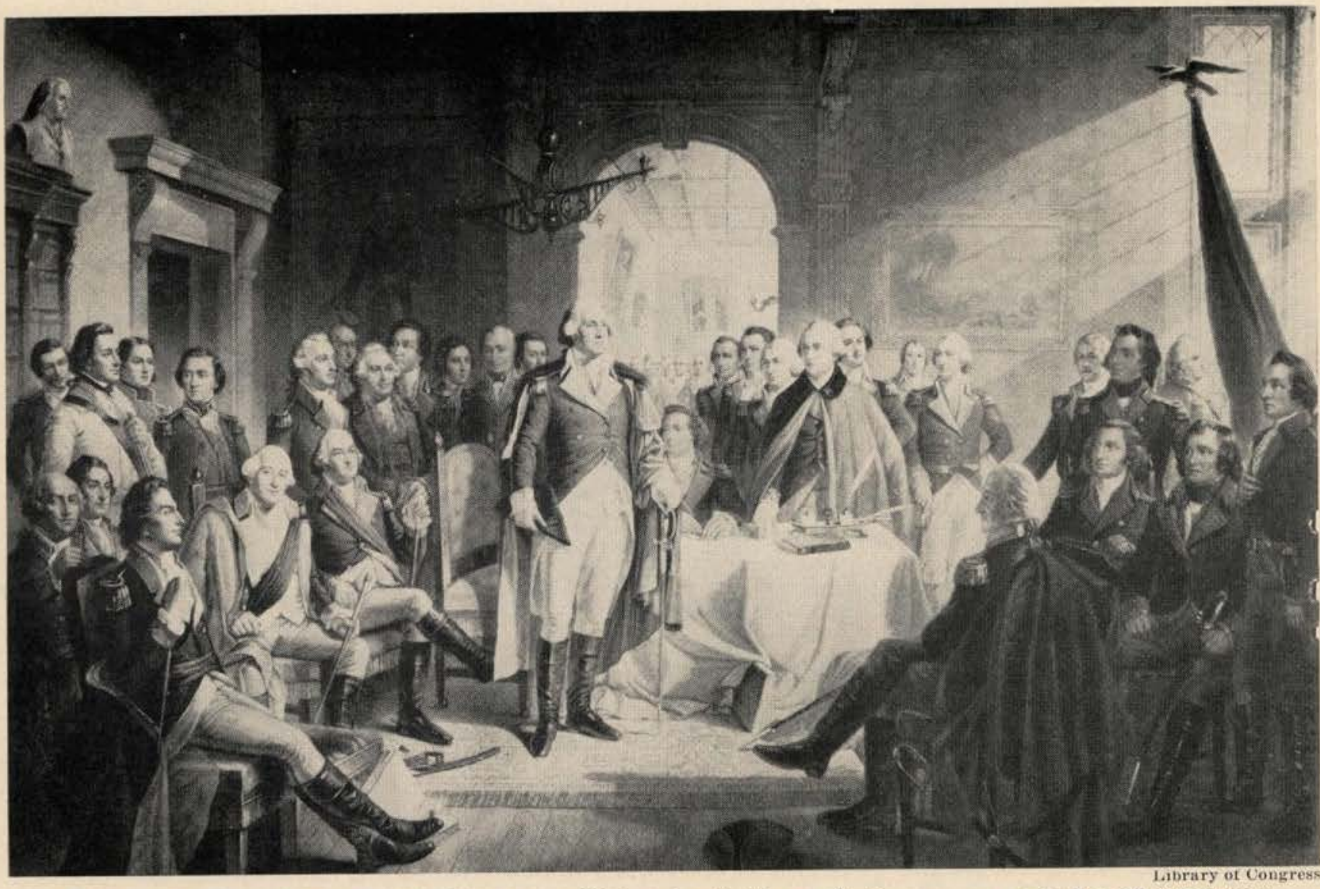
WHY, one may ask, should American military policy in 1775 or 1865 or even 1945 be studied? Aren't we in the Atomic Age; isn't everything changed now? If you are one of those who ask, read this book to see why you are wrong, why military history and tradition are relevant even in warfare with exciting new weapons and tactics.

This book is not a military history of the past wars, campaigns and battles of the United States, nor a history of the evolution of American military doctrine or strategic concepts. It is a well prepared and well presented account of the development of our national attitudes and policies toward the military establishment. The extensive research which the authors conducted is illustrated by the numerous references appropriately cited.

The story of American military policy which emerges from the pages of this book is, in many respects, a discouraging one. It is a history of failures in military policy, failures which—so far—we have always been fortunate in overcoming in crises. The authors are well aware of this persistent obstinancy to learn the lessons of our past; indeed this reviewer is inclined to suspect that this realization may have prompted the writing of the book. And a sound and useful theme it is. The recurrence of the very same problems to plague us time and again should make us all stop and think. Repeatedly, ever since 1775, the United States has failed to be prepared in four primary respects:

1. in maintaining an adequately strong standing army;
2. in mobilization plans and maintenance of sufficient military manpower reserves;
3. in material and weapons stockpiles; and finally,
4. in the balance or coordination of diplomatic objectives and military power.

The pattern of too rapid and too extensive demobilization after each war (or rather after the cessation of hostilities) which was set in 1784 was repeated in 1815, 1865-1866, 1898-1899, 1919-1920, and 1945-1946. The piecemeal discharging and rebuilding of new armies in the face of the enemy was deplored by General Washington, and by General Van Fleet in Korea. It is not only very expensive and inefficient to expand and contract the armed forces between and even during wars; it may



Library of Congress

The failure to adopt Washington's advice to establish and maintain an effective reserve marked our first mistake.

not always be *possible* to do so.

The failure of the Congress to adopt George Washington's advice on establishing and maintaining a large and effective reserve similarly marked but the first of a long list of occasions on which we have played ostrich. This repeated failure, of course, compounded the difficulties produced by the absence of adequate standing forces.

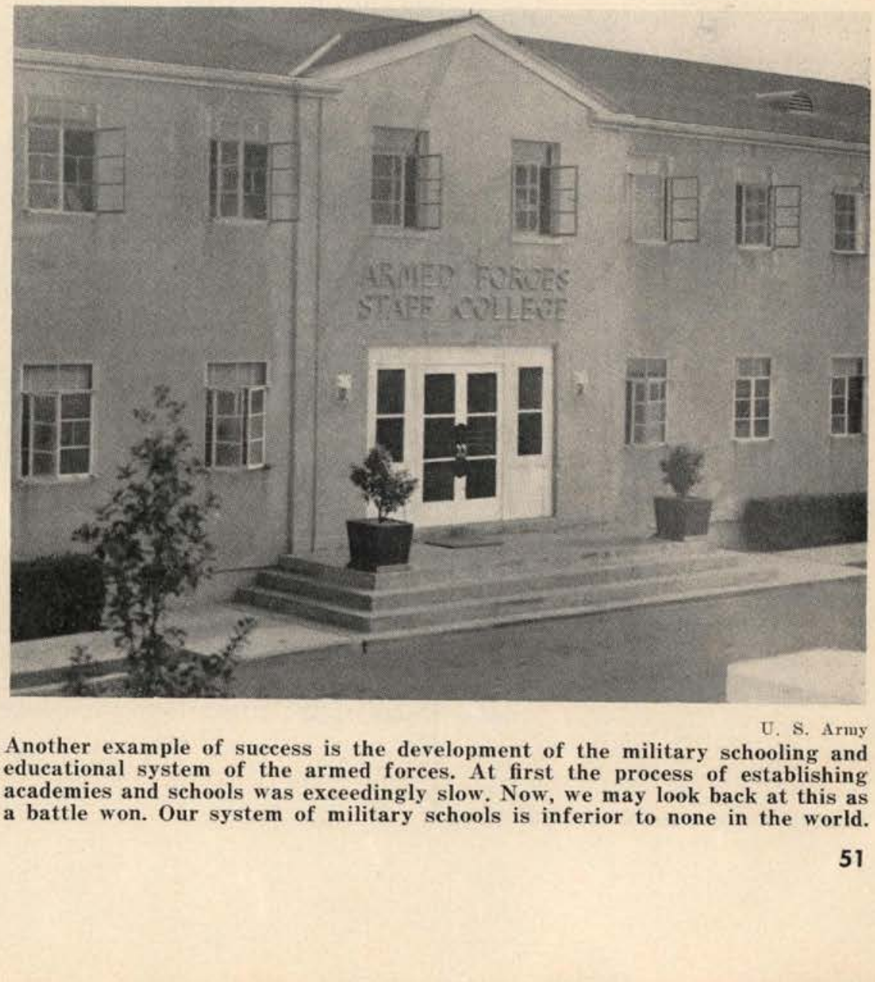
It would seem unnecessary to dwell upon the need to make military forces balance the commitments of diplomacy and national objectives. Yet even today the question must constantly be raised.

* * * *

We have, at the present moment, some reason for optimism. The present and the preceding administrations have demonstrated an awareness of the need to maintain both standing and reserve forces at an unprecedented level of peacetime strength. Nonetheless, one may wonder if this resolve will continue and if the forces will be sufficient. The "new look" (which is briefly reviewed in the book) involves among other things an effort to stabilize a given level of armed strength for "the long pull." A great deal of the fanfare which has accompanied this effort has sought to control it to the immediately preceding concept of "buildup by the year of greatest danger [usually given as 1954]." In fact, it was also the policy of the preceding administration to prepare for the long pull, but it was considered necessary to reach a given strength level by the time (1954) that the Soviet Union was expected to have obtained a certain capability. Thus in effect, the "new look" marked only a postponement of the time for reaching the previously determined strength level. Insofar as the old buildup to a key year and the "new look" in fact both marked an endorsement of the idea of creating and indefinitely maintaining military forces intended to be commensurate with the requirements of national strategy, they are welcome signs of real bipartisan efforts to overcome this recurrent malady of the past. To be sure, one may question whether the force level now planned is adequate. Personally, this reviewer believes that while the U. S. Air Force and U. S. Navy are presently planned for an adequate *minimum* long-term standing force, the U. S.

Virginia National Guard

An example of cumulative success is the evolution of early independent and uncoordinated state militias into the present National Guard and Air National Guard. The current legislation for improving and expanding the reserve components is a long step forward on the path begun in the Revolutionary War.



U. S. Army

Another example of success is the development of the military schooling and educational system of the armed forces. At first the process of establishing academies and schools was exceedingly slow. Now, we may look back at this as a battle won. Our system of military schools is inferior to none in the world.

Panzer Leader

by Heinz Guderian

The memoirs of Germany's great panzer leader and mobile warfare's great executor constitute one of the top books to come out of history's greatest war, and as a solid piece of history of mobile warfare and its contemporary tool, the tank, are required reading for all members of the mobile arm. The book comprises a real slice of the background of doctrine, organization, tactics, techniques, equipment, history and leadership in mobility in war.

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Army should probably be stabilized at a higher level (at approximately 25 divisions and 20 RCT's, including at least six to eight armored and four airborne divisions, the latter backed up with adequate air transport). But in any case, if the temptation to nibble away gradually at the established "permanent" force levels is rejected, we shall have made a tremendous step forward.

In the present world strategic picture, we must recognize the possibility of that kind of a war which would force us to fight with what we have on hand, sometimes referred to by the incisive metaphor "broken-backed war." A "mobilization base" of any size is worthless if it is reduced to radioactive ash. While our history does not hold any close parallel to this conceivable future contingency, it does bear witness to the lasting value of the concept of maintaining adequate material and ordnance stocks as well as reserves of manpower. Unfortunately, we have most frequently failed in the past to be so prepared, as this book bears witness.

* * * *

I have called attention to several recurring failures in American policy toward the military establishment. There are, of course, brilliant victories as well. One is the gradual evolution of the organization of the armed forces to the present unification in the Department of Defense of the coequal Departments of the Army, Navy, and Air Force. Whether this will, in time, lead to the establishment of a joint General Staff is problematical; the readers of this book will have the benefit of its account of the past development of the general staff concept in the Army to guide them in their speculation.

A second example of cumulative success is the evolution of the early independent and uncoordinated state militias into the present National Guard and Air National Guard. Many, again, may feel that this process has not reached its culmination. The current legislation for improving and expanding the reserve components of the armed forces is a long step forward on a winding path begun in the Revolutionary War.

The third example I should like to raise is the military schooling and educational system of the armed forces. The process of establishment of adequate military academies and schools was exceedingly slow. Washington, Hamilton, Calhoun and others urged without success that more attention be given to this vital element of military preparedness. Now, we may look back at this as a battle fully won. The system of military schools in this country is inferior to none in the world. The armed forces even send selected officers for graduate training to the nations foremost civilian universities—and, knowing a number of officers who have studied under this program, I may say that the result is beneficial to the colleges as well as to the armed forces. Our officers today are excellently prepared for the severe political and technical problems which of necessity befall the armed services.

It is a puzzling fact that international conduct is so often judged by far lower standards than are the acts of individuals. Men who would not think of assaulting another to gain an end—who would indeed suffer great loss, and be proud to suffer it, rather than obtain their rights by such a method —feel that a nation should be ever ready to assert its claims by blows.

GEORGE M. STRATTON

* * * *

The reader must, by now, have concluded that I recommend this book. I do indeed; it repays study. Nonetheless I feel it suffers to a certain extent from two weaknesses. One is a lack of attention, especially in dealing with the recent postwar period, to *the strategic and political contexts of military policy*. For example, the view of the Korean War which one finds in this book seems too narrow. Granted that the restrictions on the conduct of the war were probably too conservative and not necessary (personally I believe that there was no serious danger of direct Soviet intervention if we had bombed beyond the Yalu). Granted, certainly, that a full victory and liberation of North Korea would have been still more of an accomplishment. Nonetheless, the United States and United Nations repulsed armed Communist aggression for the first time—a notable victory for the forces of freedom in the world.

* * *

It is a fearful thing to lead this peaceful people into war, into the most terrible and disastrous of all wars, civilization itself seeming to be in the balance. But the right is more precious than peace, and we shall fight for the things which we have always carried nearest our hearts—for democracy, for the right of those who submit to authority to have a voice in their own governments, for the rights and liberties of small nations, for a universal dominion of right by such a concert of free peoples as shall bring peace and safety to all nations and make the world itself at last free.

WOODROW WILSON

* * *

The other, and related, criticism I feel should be voiced concerns *the historical context of military policy*. For one thing, there is a tendency to judge American statesmen solely in terms of their military policy. Thus, for example, Jefferson fares very badly in this book. I recognize that the attitudes of statesmen toward the military establishment are the justifiable focus of the attention of the authors of this book. Nonetheless, the authors' judgments seem at times to be evaluations of the presidents rather than evaluations of their military policies.

A more serious criticism, but at the same time perhaps an unfair one, is that the book does not examine current American military policy in its full historical context. "Peripheral war" is described in less than two pages as a peculiarly Communist tool. "Limited war" is discussed not at all. Does it not behoove us, in the emerging period of mutual ability of the enemy and ourselves to annihilate one another, to reexamine the conditions and means of warfare restricted to limited objectives? If, or for so long as, we cannot destroy the threat to us without paying the price of our own destruction too, is it not necessary to prepare for defensive (and why not offensive?) peripheral and limited wars? We have fought limited wars before (e.g., the undeclared Naval War with France in 1798, the War of 1812, the Spanish-American War). Finally, a broad view of modern world history points to the nearly absolute security of the United States from 1815 to 1945 as an "abnormal" situation. The United States can thank Providence for over a century of effective immunity from real external threat to our national life, but we must also recognize that if we ever had an option on isolationism, we obviously cannot again. Not only has technology so decreed, but the challenge of aggressive Soviet Communism so demands.

In concluding this article, I can do no more than to underline the closing words of the book under review: *"If America is again forced to take up arms unprepared she may well lose the heritage for which so many have fought and died."*

Soviet Military Doctrine

by

Raymond L. Garthoff

Soviet Military Doctrine is an analytical study of Soviet "principles of war." It inquires into the guiding doctrine of Soviet armed forces, the foundation of their strategy, and their employment in war. It is neither a popular treatment of the Soviet Army nor an anecdotal history of that army in World War II. Prepared as part of the research program undertaken for the United States Air Force by The Rand Corporation, it is the only serious study we have of the basic military science of the USSR.

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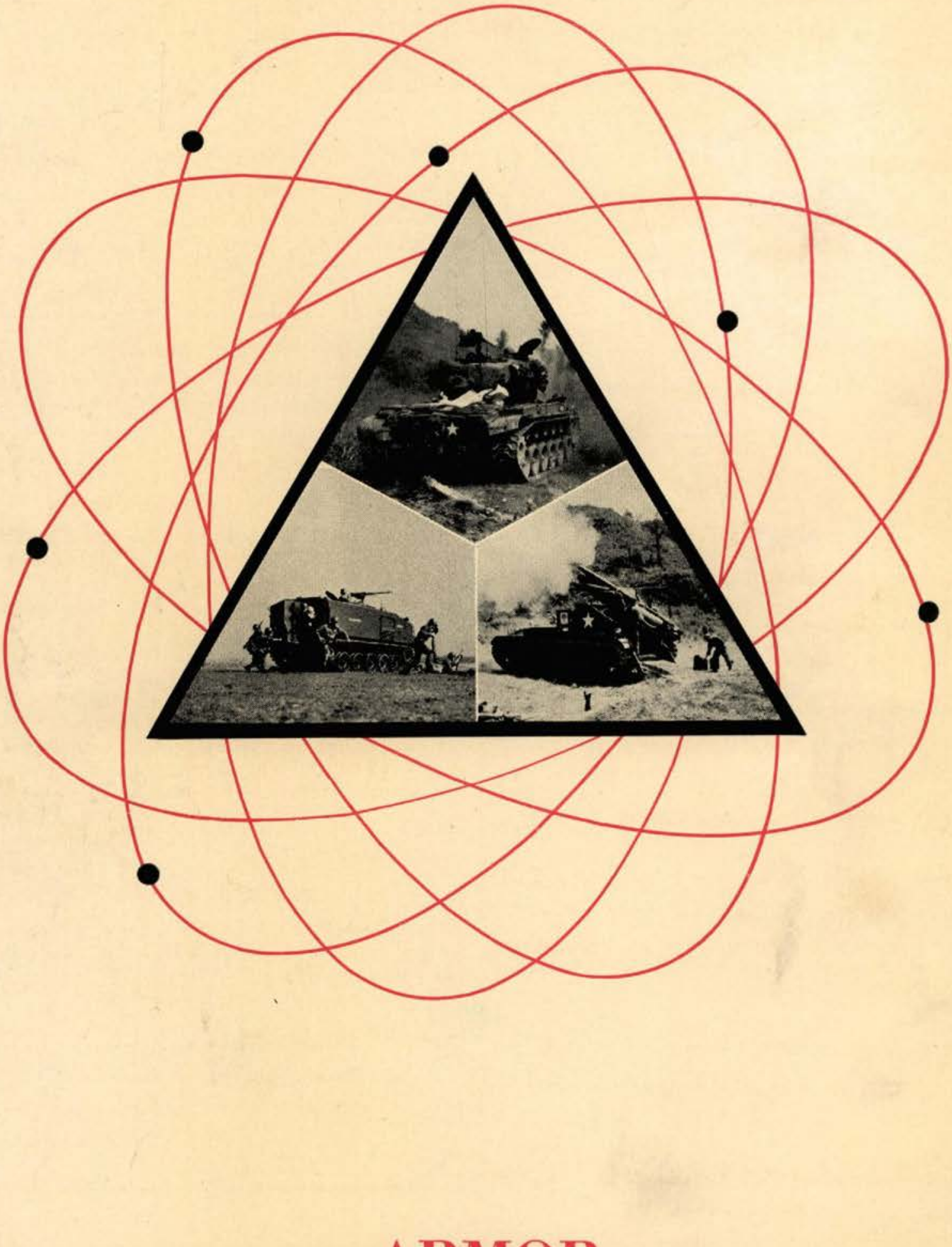

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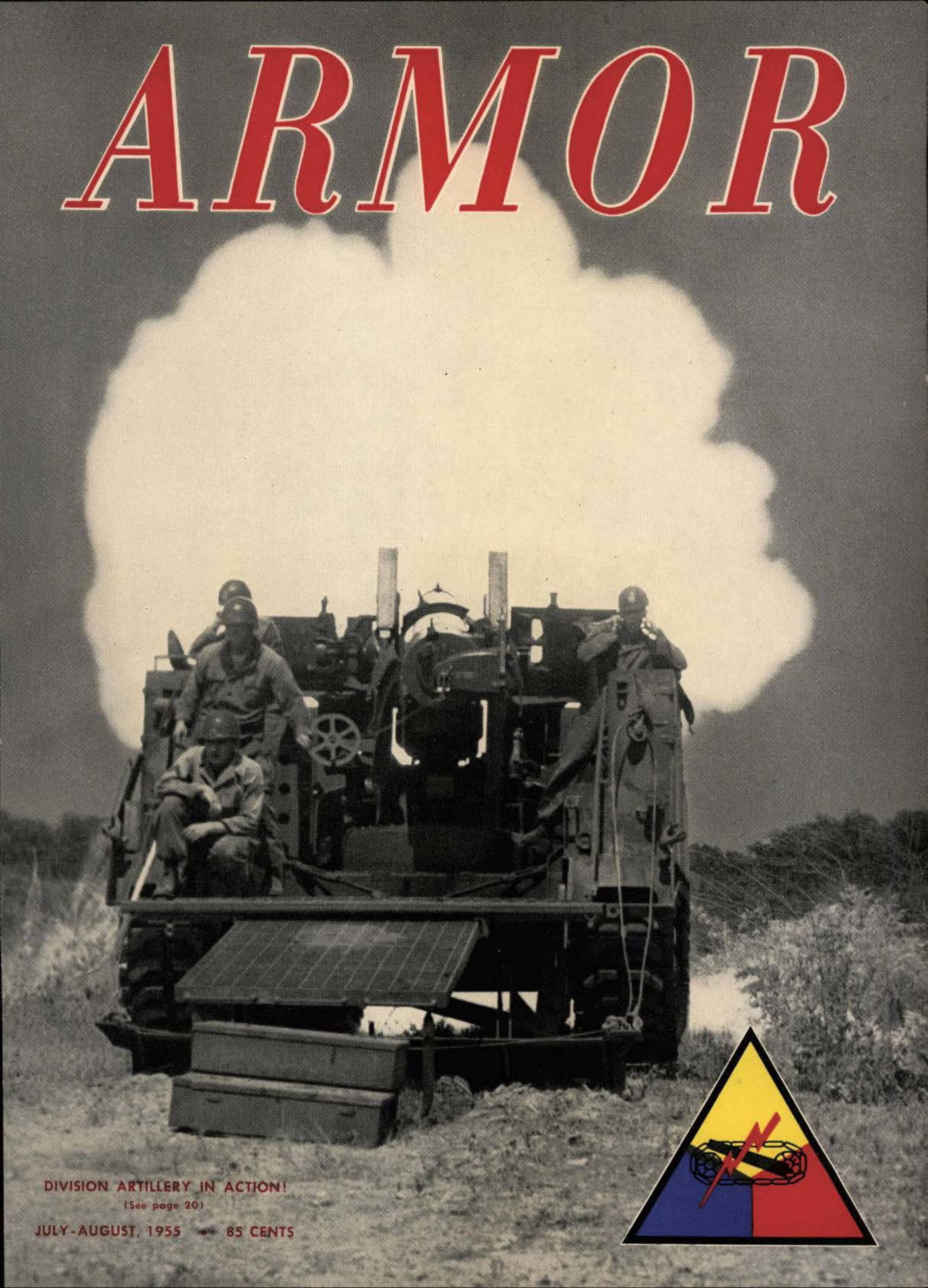

DIVISION ARTILLERY IN ACTION!
(See page 20)

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This new book on the personal life of General Patton, will be published in September. Richard O'Connor, author of "Sheridan the Inevitable," will review it in the September-October issue.

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LETTERS TO THE EDITOR

Re: Complexity of Equipment

Dear Sir:

In the January-February issue of ARMOR, there appeared a very timely editorial on the Ordnance equipment now in the hands of Armor.

Our tanks are now far more complex than they have ever been, and the problems the operator of this equipment must contend with have been likewise multiplied. As you have pointed out, the capabilities of the soldier are fixed, and his required training time must be kept to a minimum, especially in time of rapid mobilization. The only logical solution to the problem lies in designing equipment that can be operated most simply and effectively by the average soldier.

It will be of interest to your readers to know that Ordnance is cognizant of this problem of equipment complexity and has taken steps to alleviate the operating difficulties inherent in technologically complicated matériel. The Human Engineering Laboratory at Aberdeen Proving Ground has been organized for this purpose. Its mission is to study and promote the simplification of operator problems. As part of this effort a Field Liaison Section has been set up in order to contact the using troops and find out what some of the troublesome areas are from their point of view. We feel that the man who uses this equipment day in and day out is a valuable source of information, and his opinion should be sought.

One of the field liaison teams is concerned with human engineering problems on wheeled and track-laying vehicles. This team has been contacting Armored units throughout the continental United States. Interviews are conducted at all levels from division officer personnel to the crew members of each tank in the platoons. All comments and suggestions are carefully noted, and those which are repeated frequently, or bear special merit are brought to the attention of Ordnance designers and other interested Army agencies.

We hope in this manner that Ordnance will develop matériel that meets the needs of the average soldier. We are asking him to speak up about his likes and dislikes on the equipment he is using to help us produce the finest equipment possible.

LIEUTENANT EVAN CHARNEY
Ord Corps

Field Liaison Team Officer
Human Engineering Laboratory
Aberdeen Proving Ground, Maryland

The ROTC AWARD

Dear Sir:

The annual award of the U. S. Armor Association for the Ohio State University was presented by the University President during the annual President's Review held 12 May.

The Association Scroll, three books (Panzer Leader, War As I Knew It, and Preparation for Leadership), and membership in the Association were presented to Cadet Eugene R. Fanker as the outstanding Armor graduate. Cadet Fanker, a senior in the College of Education, is majoring in Commercial Art. He has been appointed a member of the Mershon Honorary for outstanding leadership qualities, and a Distinguished

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Rates: See bottom of contents page.

Military Student. He is President of the University Commercial Art Club and a member of Alpha Delta Sigma professional fraternity.

Colonel A. B. Devereaux

P. M. S & T.
Ohio State University
Columbus, Ohio

Armored Medics

Dear Sir:

The Tank Battalion Surgeon has his sick call like any Infantry or Artillery unit surgeon; however, in combat he may expect a high percentage of certain types of casualties and possibly injuries which are unique in the armor trade. My impressions in this matter have been casually gathered from the volunteered memories of the various and fragmentary experiences of the minority of officers who have been in bloody combat situations.

I am very much interested in obtaining back issues of "ARMOR" which contain articles on this subject and would appreciate referral to other sources. The experience of any of your readers would be most welcome.

1st Lt. Joseph B. Ruffin

Medical Detachment
70th Tank Battalion, APO 201
San Francisco, Calif.

More On Hats

Dear Sir:

A question that has always bothered me, and undoubtedly many others, is, where did the Fort Knox style garrison cap originate?

Is there any directive that authorizes or directs the wearing of this cap by personnel assigned to Armor?

I have heard it rumored that Major General Adna R. Chaffee designed the cap as a mark of distinction for the mobile branch. Is this correct?

Most of our allies have their tankers wearing black berets. Has this headgear ever been considered for wear by United States troops? I have had the opportunity of trying the beret on and found it to be very comfortable. It does not rub against the jeep top either.

I would appreciate any background information you might be able to furnish on the subject.

Captain Edward D. Dougherty

Advisor, 140th Tank Battalion
1375 North Fair Oaks Avenue
Pasadena, California

●*The writer of this letter was advised to contact The Armored Center, Fort Knox and the Office of the Quartermaster General. However it is believed that this story could best be related by some person who served in Armor during the hectic '30s. It is hoped that someone will endeavor to supply the information in time to publish it on these pages in the next issue.*—Ed.

Ten Days to Die

Several requests for the book "Ten Days to Die" by Judge Musmanno have been received here in the office. Neither the publisher nor the author has any copies available for sale. If anybody has a copy he is willing to sell please contact The Editor at 1727 K Street, N. W., Washington 6, D. C. Please state the price you want for the book.

While on this trend if any member desires to purchase a book out of print we will be happy to announce it on these pages and endeavor to get you a copy second hand.

THE COVER

The photograph on the cover is a Department of the Army shot taken at Camp Chaffee, Arkansas. The tremendous firepower of this 155mm gun, plus its ability to displace in any direction in a matter of minutes, gives the modern Armored Division more flexibility and more punch than ever before.

BEDFORD FORREST

and His

Critter Company

by

Andrew N. Lytle

Bedford Forrest, whose philosophy of "first with the most" is the keynote of mobile warfare, was one of the oustanding Confederate leaders in the Civil War. In four years of spectacular leadership he never knew defeat. Small wonder that Sherman once said "I am going to get Forrest if it takes ten thousand lives and breaks the treasury."

$4.00

An engineer discusses a subject of compelling interest to all tankers

Tank Diesels

by RICHARD M. OGORKIEWICZ

AT a time when popular attention is attracted by supersonic guided missiles and nuclear energy it may seem almost old-fashioned to talk about diesel engines. On the ground, however, in the military automotive field, we are entirely dependent on the efficient utilization of liquid petroleum fuels and this problem, therefore, is still one of immediate importance. Lately, too, there have been signs of greater appreciation of the problem of fuel supply to combat units. All these, inevitably, involve diesel engines, which are still the most efficient prime movers.

RICHARD M. OGORKIEWICZ, a frequent contributor to ARMOR, is presently with the Ford Motor Company, England. Until recently he has held the position of diesel development engineer. He is presently the assistant to the chief engineer. All photos, unless otherwise identified, are through the courtesy of the author.

There is, of course, nothing new in the application of diesel engines to armored combat vehicles. Several attempts have been made during the past twenty years but for various reasons diesel engines have not, so far, become accepted for tank use, except in Soviet tanks.

The reasons for this apparent failure of the diesel engine in the tank field are bound up with many factors, not the least of which is the general development of automotive diesels. It is against this general background, therefore, that initially much of the tank diesel development must be viewed.

Automotive Diesels

The diesel engine is a relative newcomer to the automotive field, not only by comparison with the much older gasoline engine but even by comparison with the tank. In Europe commercial application of the automotive diesel did not start in earnest until the early thirties and in the United States the mid-thirties. Even then it was for some time confined to heavy trucks and tractors.

More recently, however, and espe-

SovFoto

As early as 1939 the Soviet T34 tanks were being equipped with diesel engines. Here are T34's in a Ural assembly factory.

cially since the end of World War II, their use has spread rapidly. In Europe the diesel is rapidly becoming the standard truck engine and it has made equally great strides in the agricultural tractor field. In Germany, Italy and Britain there are now even diesel engined passenger cars and there is no lack of evidence of the continued emphasis on diesel power in the Communist world.

In the United States, with its abundant supplies of fuel, there has not been the same economic incentive to develop the automotive diesel, and as a result comparatively little interest and technical resources have been devoted to it. But there, too, there are now signs of increasing interest in automotive diesel engines and their possibilities of more efficient fuel utilization.

It is against all these relatively recent automotive developments that much of the progress of the tank diesel must be considered for the two are obviously closely related. The tank diesel, however, has not been entirely dependent on the developments in the truck and tractor fields. In fact, the lead came first from the aircraft field, where diesel engines were taken up soon after World War I.

This last development began in Germany, the home of Dr. Rudolf Diesel, which led in the development of diesel engines and where after the successful establishment of this type of engine in the industrial and marine fields attention began to turn to aircraft. By the end of World War I some work had already been done by the firm of Junkers, who several years later produced the famous "Jumo" opposed piston aircraft engine, and after the war the development of aircraft diesels was taken up in several countries. For a time it showed considerable possibilities, particularly as the octane ratings of the aviation gasoline then available were very low.

Early British Diesels

Among the places where the development of aircraft diesels was pursued vigorously was the Royal Aircraft Establishment in England. The work there attracted the attention of a few far sighted officers at the War Office, who saw the possibilities which the increased economy of the diesel offered in the tank field. As a result the Ricardo engine development organization was asked to design a tank diesel engine, a task which was successfully accomplished in 1927.

The British Vickers Medium—the first tank in which a diesel was installed.

The head of that organization, Sir Harry Ricardo, a world authority on engines, had already played an important part in tank development, having been responsible for the first tank engine ever designed as such. This was used in the British Mark V tank of 1917, and was, incidentally, responsible for these tanks being called "Ricardos" by the Russians who captured a few during the Civil War.

The first Ricardo tank diesel, the S.90, was a four cylinder, water cooled, sleeve-valve unit developing 90 b.h.p. at 1,300 r.p.m. It was installed in a Vickers Medium Mark I, the work horse of the Royal Tank Corps at the time, in place of the standard Armstrong Siddeley air cooled gasoline engine. The vehicle performed with credit and orders for three more designs were placed, including one for a six cylinder engine developing 180 b.h.p. This engine was installed in one of the new medium tanks, the A.6 E.2, one of the three very promising "sixteen tonners" which were then being developed by Vickers Armstrong.

However, neither these tanks, nor the engines, ever got beyond the prototype stage. Economic difficulties in the early thirties cut down drastically tank development funds and all these very promising projects withered away.

When tank diesels were taken up again, as part of the rearmament program belatedly undertaken on the eve of World War II, it was commercial engines which were used: they had by then made considerable progress and, what is more, there was no time to develop engines specifically for tanks. The use of commercial engines imposed several limitations, notably that of low output, but this was somewhat alleviated by their use in the slow "infantry" tanks.

The first British service tank with a diesel was the Infantry Tank Mark II, or Matilda, which was introduced in 1938 and which was used with some success in France in 1940 and in the first Libyan campaign. It had a twin power unit installation consisting of two six cylinder, water cooled engines of 95 b.h.p. each, modified versions of the engines produced by the A.E.C. organization, famous for its double-deck London buses, or by Leyland, the largest British bus and heavy truck manufacturer.

The Mark II Infantry Tank was followed quickly by the Mark III Valentine. The latter was lighter than the Matilda and was powered by a single A.E.C. engine; it distinguished itself for reliability in North Africa, in 1941-42. The original model of the Valentine, however, still had a gasoline engine and when the next design of an "infantry" tank, the Mark IV, or Churchill, was initiated in the early months of World War II, a gasoline engine was again specified. The reason was that no suitable diesel engine was then available, nor could one be developed quickly enough. Later Leyland designed a 12 cylinder, horizontally opposed supercharged diesel engine developing 350 b.h.p. for it, but although prototypes were promising, by the time they were ready they were no longer needed.

At about the same time attempts were also made to use a 600 b.h.p. V-12 Paxman-Ricardo marine engine in the 90 ton TOG heavy tank. However, this throw-back to World War I was virtually obsolete before the design started and the vehicle never got beyond the experimental stage.

French and German Experiments

The only direct result of the original British sleeve valve tank engine development was, oddly enough, in France. There the Berliet motor company had established technical liaison with the British Ricardo organization and proceeded to manufacture Ricardo sleeve valve diesels under licence. These 80 b.h.p. engines were then installed in a light, all-welded infantry tank produced by another French company, *les Forges et Chantiers de la Méditerranée,* better known as F.C.M., for short.

The resulting *Modèle 1936 F.C.M.* was not, however, an outstanding success: one of its major drawbacks was its very high price of 450,000 francs, compared with the 190,000 francs per tank quoted for the competitive Renault light tank. In consequence, although the F.C.M. tank was standardised in 1936, only 100 were procured and these were issued to the 4th and 7th Tank Battalions which remained the only French units with diesel engined tanks right up to the disaster of 1940.

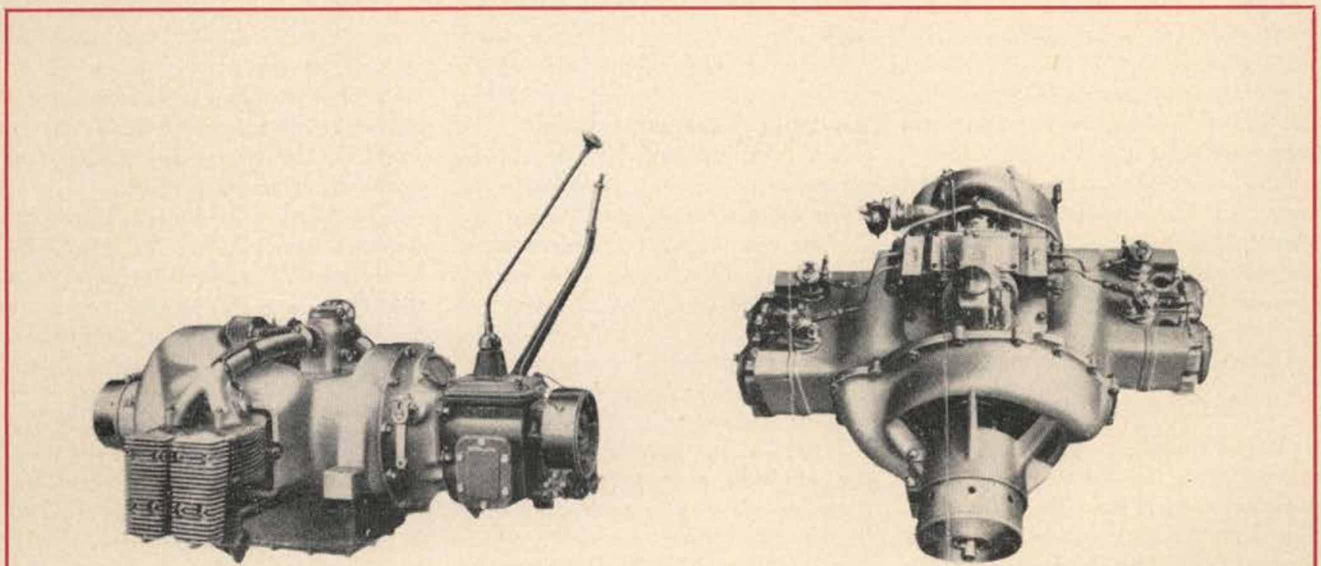
The victors of the 1940 campaign, the Germans, had not shown more interest in tank diesels up to that time either. True, in 1933, when the French were laying down specifications which resulted in the *Modèle 1936 F.C.M.*, the Germans were experimenting with a very interesting diesel engine built by the famous armament firm of Krupp. This four cylinder, horizontally opposed unit of 50 b.h.p. combined successfully the two advantages already demonstrated in British tank development—the economy of the Ricardo tank diesel and the air cooling of the then standard Armstrong Siddeley gasoline tank engines—and might well have led a minor revolution in tank engineering.

However, nothing came of it. Policy decisions on the availability of fuels veered toward gasoline and it was the alternative, gasoline version of the Krupp engine which was eventually adopted for the Pz.Kpfw. I Model A, the first quantity produced German tank of the early thirties. The next tank, the Pz.Kpfw. I Model B, had a water cooled Maybach gasoline engine and from then on, well into World War II, the Germans remained wedded to this type and make for their tanks, including the famous Tigers and the Panther.

Japanese, Italians and Russians

It was in Japan that tank diesels were first taken up seriously and used on any appreciable scale. The Japanese began to explore the use of diesel engines at about the same time as the Germans and the French, one of the principal attractions of this type of engine to them being the question of diesel fuel supply which was deemed less critical in case of war than high grade gasoline. The early Japanese engines were probably influenced by German designs—though no mere copies—and the first was an in-line, 6 cylinder, air-cooled model of some 115 b.h.p., which was introduced on the Type 92 (i.e. 1932) medium tank.

In the light of contemporary technical knowledge the adoption of this type of engine was a bold step, well in advance of any of the Western Powers. The engines, as such, may have left a certain amount to be desired from the performance point of view. But the basic choice of an air cooled version was sound, not only because of the great advantages of air cooling in military vehicles but also because it is particularly suitable on a diesel engine which has inherently lower cooling requirements than a gasoline engine.



Two views of the Krupp 4-cylinder air-cooled diesel. This 1933 model was not adopted for tank use due to lack of fuels.

The Japanese "Shinhoto China" with a V12 air-cooled diesel.

The Italian M13/40 tank with a V8 water-cooled diesel.

The engine adopted on the Type 92 medium tank was carried over, in a slightly improved form, to its improved version, the Type 94, which was produced and used on some scale from the mid-thirties on. From then on, too, virtually all Japanese armored vehicles were powered by air-cooled diesel engines: from the Type 95 *Kego* light tank and the Type 97 *Chiha,* which took part in most of the Japanese campaigns of World War II, to the less well known Type 3 *Chinu* 75mm gun medium tank and the 300mm *Hato* self-propelled mortar, which were introduced toward the end of the war.

The engines used in all these tanks, self-propelled carriages, carriers and tractors covered in-line 4 and 6 cylinder models and V-8 and V-12 versions, their horse powers ranging from 60 to 240 b.h.p. The Type 100 (i.e. 1940) 6 cylinder, V-8 and V-12 engines were actually based on a common bore and stroke, with the attendant advantages of standardization, and showed that in this respect, too, the Japanese were well ahead in their thinking.

Several years had to pass from the adoption of the first Japanese tank diesel before any European country standardised diesel engines in its tanks. Italy was actually the first and its development began in the mid-thirties, with what was grandiloquently called the *carro di rottura,* or "break-through tank." Actually this was a rather mediocre design which eventually evolved into the M 11/39 medium tank. The SPA Model 8T engine of this tank was a water cooled V-8 of 105 b.h.p. and this became virtually the standard Italian armored vehicle power unit during World War II. It was used on such vehicles as the M 13/40 medium tank—an improved version of the earlier M 11/39—and the 75/18 *Semovente,* a short 75mm assault gun. It was not in any way an outstanding design and, like the whole of the Italian tank development of that period, showed none of the advanced ideas which have come to be associated with the Italian automobile industry.

A much more significant event than the adoption of tank diesels by the Italians occurred a little later when the Russians became converted to this type of power unit. Their development, too, began in the mid-thirties and, like the Japanese, was partly dictated by the concern over the supply of high grade gasoline in war time. By 1939 they produced a very striking diesel engine which was introduced in the new T34 medium and KV heavy tanks, although a few were also used in the earlier BT-7m Christie-type tanks.

The origin of the Soviet tank diesel has sometimes been ascribed to the French designer L. Coatalen, who had exhibited a somewhat similar aircraft diesel at the 1936 Paris Aero Show. There is, however, little evidence to support that theory and, if anything, the Soviet engine bears a stronger resemblance to contemporary Italian gasoline aircraft engines. Be that as it may, the Soviet V2 is a water cooled V-12 of 2,375 c.in. capacity which in its original version was rated at 500 b.h.p. when used on the T34 and at 550 when used on the heavier KV tank. Designed largely to aircraft standard—though manufactured to far less exacting specifications—the V2 was well ahead of any contemporary automotive diesel. In fact, for a time it developed more power and had a higher power to power unit size ratio than any other tank engine. This, coupled with its inherent fuel economy, made a very substantial contribution to the design and performance of the T34 and KV tanks which made such an impression on the Germans in 1941 and which did so much to establish Soviet reputation in the tank field.

Once accepted, the V2 became the standard Soviet tank engine and was used on all developments of the T34 and KV series, including the Stalin heavy tank and the various S.U. vehicles based on T34, KV and JS chassis. Though now outdated by later gasoline tank engine developments, the V2 still retains the advantages inherent in this type of power unit and shows clearly what can be done given a sufficiently bold approach to a problem and adequate resources.

U. S. Tank Diesels

Like the Russians, American development of tank diesels began in the mid-thirties and, like the British, was preceded by that of aircraft diesels. In the early thirties, in fact, the Packard Company had gone into small scale production with a 9 cylinder air-cooled radial model—the only aircraft diesel to do so, apart from the German Junkers Jumo two-stroke. The development of the Packard engine ceased by the mid-thirties but it established the feasibility of that type of engine and encouraged the development of another design, the Guiberson.

This last engine attracted the Army's attention and in 1936 the T4 light tank was specified with a 5 cylinder, radial, air cooled Guiberson diesel. No more came of this than of the earlier interest in the commercial Cummins diesel for the T3 medium and the T1 combat car but in the following year three M2A2 light tanks (M2A2E1) were fitted with the 9 cylinder Guiberson of 266 b.h.p., in place of the standard 7 cylinder Continental gasoline engine. About the same time the 9 cylinder Guiberson was also tried in the Cavalry's T5 and then M1 combat cars.

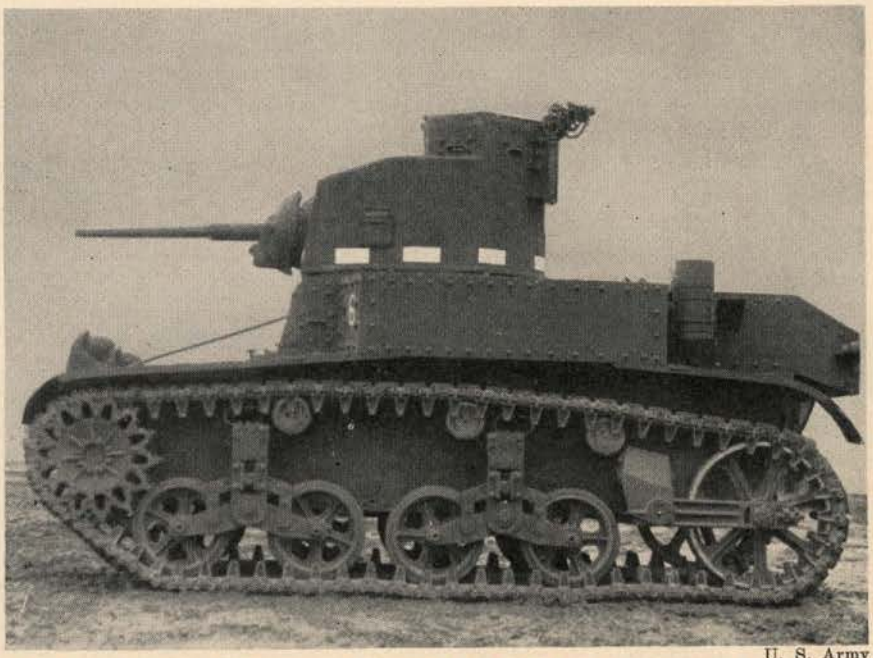
In 1938 these early experiments were followed by the production of a few M2A3E1 light tanks and M1A1-E1 combat cars with diesel engines and by an order for the diesel engined T5E1 medium tank. The first two led to the Guiberson-engined M2A4 and M3 light tanks and the latter to the diesel engined M3 medium, which were used in the early stages of World War II. Their development was, however, hampered by the teething troubles of the Guiberson engine —which, for instance, was not cleared for aircraft use until 1940—and by the time all these were ironed out many opportunities had, unfortunately, slipped past.

While the Guiberson engine was struggling through its development phases, in 1938 the General Motors Corporation placed on the market its now well known series of automotive two-stroke diesels. One of these commercial water cooled engines was tried in 1939 in an M2A3E3 light tank and the development of a very neat V-4 version, the 4V-223 of 250 b.h.p. was put in hand for the M2 light tank series. An experimental model of the latter engine was tried in 1940 but by then more powerful engines were needed and the choice fell on the commercial 6 cylinder 6-71 type. Twin power unit installations, similar in principle to the A.E.C. or Leyland units used on the British Matilda and consisting of two 6-71 engines coupled together to give a total of 410 b.h.p., were standardised —first on the M3A3 and M3A5 medium tanks and then on the M4A2 medium and the M10 3 in gun motor carriage.

Altogether some 22,000 of the 6-71 engines were supplied during the course of World War II for the M3, M4 and M10 installations. The use of these vehicles in the U. S. Army was, however, limited by a decision to standardise on gasoline for Army combat vehicles. As a result, from March 1942 onward, diesel engined tanks were confined to the continental United States and such of them as were not used for training or by the U. S. Marine Corps were shipped overseas, under the Lend-lease arrangements, for use by Allied powers which included Soviet Russia. However, many of the M4A2 medium tanks went also to the British forces where they saw extensive use and where, under active service conditions, they were usually preferred to the gasoline engined M4 mediums.

Although the fuel policy decision put a brake on further development, interest in tank diesels in the United States did not die out completely. Late in 1942 authorization was given for the development of a diesel version of the Wright air cooled radial gasoline engine with the Caterpillar combustion system. The resultant 450 b.h.p. Caterpillar RD-1820 was experimented with in the M4E1 and was later standardized in the M4A6 medium tank but before it got much further the whole project was dropped. A similar fate overtook the earlier, 1940, experiments with the Guiberson engine in the T13 eight wheeled armored car, the 6 cylinder Cummins HBS in the M2A3E3 light tank and the twin Hercules DRXBS in the T7E3 experimental light tank. In 1944 the same thing happened to the special 600 b.h.p. V-8 version of the General Motors two-stroke series, the 8V-184, which was tried in a M4A2E1 medium tank.

In addition to the M3 and M4 medium tanks and the M10 gun motor carriage, the General Motors 6-71 engines were also tried in the T1E4 heavy tank in a quadruple installation and some 8,000 were supplied for use in the British and Canadian built Valentine infantry tanks. In these, from Valentine IV on (except for


U. S. Army

The United States M3 light tank powered with the Guiberson diesel tank engine.

The German 8 x 8 Armored Car used the Czech-built Tatra V12 air-cooled diesel.

Valentine VIII) they replaced the earlier and less powerful A.E.C. engines. They were likewise retained in further developments of the Valentine series, such as the Archer 17 pounder self-propelled anti-tank gun and the Valiant experimental infantry tank.

The second version of the latter, the Valiant II, was intended to use the British Meteorite diesel, a V-8 diesel version of the still standard Meteor V-12 gasoline tank engine. But by the time this project came to fruition the British Army had also decided to standardise on gasoline for front line vehicles and consequently lost interest in tank diesels. The Meteorite actually achieved some commercial success after the war but in the closing stages of the war the only British armored vehicles with diesel engines, apart from the U. S. engined M4, M10 and Archer, were the A.E.C. armored command vehicles and the A.E.C. heavy armored cars. They were all powered by A.E.C. commercial, 6 cylinder, water cooled diesels of 95 to 158 b.h.p.

World War II German Developments

In contrast to the American and British loss of interest in diesel engines for armored vehicles in the second half of World War II, the Germans moved toward increasing use of tank diesels. This is all the more noteworthy as they had concentrated for many years on the development of gasoline engines designed specifically for tanks and were exploring further their possibilities by the use of gasoline injection, by means of which they were able to raise the power of the V-12 Maybach engine used on the Tiger II from about 600 b.h.p. to almost 900.

The increased interest in tank diesels is also very significant because by the time the Germans turned to them they had accumulated a very considerable amount of experience in operating under extreme temperature conditions on the Eastern Front, in Russia. Such very cold weather conditions are always regarded as particularly difficult for diesels—though, of course, the Russians did quite well with their tank diesels under the same conditions!

Actually only one German diesel went into regular service in armored vehicles before the war ended. This was the Czech-built Tatra V-12 air cooled engine of 220 b.h.p. The Tatra organization had a good deal of experience with gasoline air-cooled engines, which it manufactured earlier for various applications, and the diesel engine which it produced was an ingenious design well suited to armored vehicle use. It was first installed in 1943, in the re-designed series of German 8x8 armored cars and it was also intended to be used in the *Jagdpanzer 38d*, a turretless "tank hunter" on which considerable emphasis was placed in the closing stages of the war. This vehicle and its companion, the earlier gasoline-engined *Jagdpanzer 38t*, were to represent over 60 per cent of the German armored vehicle production planned for 1945.

Apart from the Tatra there were, however, several other military diesel engines under development toward the end of World War II. They ranged in power up to 1,500 b.h.p. and included some very promising loop-scavenge (valveless) two-stroke engines, as well as the more conventional four cycle designs. But, for the most part, they were still in their early development stages when the German surrender put an end to this work from the military point of view.

The potential of some of these designs was such, however, that after the war they were able to achieve considerable success in the commercial field. A good example of this is the Deutz series of air-cooled automotive and industrial engines, ranging in size from a single cylinder model to a V-12 of 250 b.h.p., all based on a single standardised cylinder size.

The end of World War II similarly put an end to the Japanese development of tank diesel engines. With the United States and Britain firmly committed to the use of gasoline engines and France showing no interest in diesels either it left Soviet Russia as the only exponent of that type of tank power plant. That was the situation in 1945, and ten years since, it is still virtually unchanged! Yet many of the factors which operated against tank diesel engines are no longer present and several new ones definitely favor them.

Adverse Factors

When the reasons for the apparent failure of the tank diesel to date are examined closely some striking points appear. Apart from the debatable questions of fuel policies, the main factors which have been operating against them can be grouped under one or the other of the following headings:

1. availability of suitable gasoline

engines, mainly of aircraft origin, or

2. industrial commitment to gasoline engines with the resulting lack of sufficient diesel manufacturing capacity and limited general knowledge about diesel engines, or
3. the lower power to bulk ratio of the diesel when compared with a gasoline engine.

These factors have affected adversely the development of the tank diesel in the past but they have now been invalidated by recent developments, or are likely to apply with far less force in the future.

For instance, let us consider the availability of suitable gasoline engines. With the limited development funds available in the past aircraft engines were resorted to, especially as they could be adapted with relatively little trouble. Thus, the World War I V-12 Liberty aircraft engine was pressed into service in the Anglo-American Mark VIII heavy tank, in Christie's experimental T3 medium and in the British cruiser tanks designed on the eve of World War II. The Meteor tank engine, which in its various forms has powered British tanks from the Cromwell cruiser tank of 1943 to the Centurion and Conqueror of today, is nothing but a ground version of the famous Rolls-Royce Merlin aircraft engine. The standard Soviet tank engine in the thirties, the engine which has powered hundreds of the B.T., T28 and T35 tanks, was a German B.M.W. aircraft engine. In the United States all the pre-war radial Continental engines were adapted aircraft designs, as was the war-time Ford GAA of the M4A3E8 medium.

While the availability of all these engines helped to further the use of gasoline power plants this state of affairs is not likely to apply much longer as the type of power plant used in aircraft is becoming increasingly specialised and, therefore, incapable of being adapted to the needs of ground vehicles. As for suitable size engines from the commercial automotive field these are showing a definite trend to diesels.

Coming to the second point, the rapidly expanding use throughout the world is familiarising thousands of people with diesel engines, which are now operating satisfactorily in all corners of the earth with the minimum of skilled attention. Hand in hand with the expanding use has gone an expansion of manufacturing facilities and increasing engineering know-how. In England, for instance, there are now factories producing more than 200 automotive diesels each day—something undreamt of a few years ago.

One very important result of the increased production has been a reduction in manufacturing costs, which used to be cited as one of the disadvantages of the diesel. True, a diesel engine is basically somewhat more expensive to manufacture than a carburetted gasoline engine, mainly on account of the cost of its injection equipment. But, with the increasing production, cost differences have been considerably narrowed and they have by no means prevented the diesel from challenging the gasoline engine in the highly competitive commercial field.

The difference in cost between the two types of engines, which decreases with increasing size of engine, is likely to be further narrowed by the recent trend to gasoline injection. This, like the diesel, requires precision-built fuel injection equipment and although the equipment on the gasoline engine may be simpler the difference is only in degree and not in principle. Therefore, the old arguments against diesels on the grounds of simplicity and cost no longer apply.

The one real and basic disadvantage of the diesel for tank use is its lower power to engine size ratio compared with that of the gasoline engine. This has often been exaggerated and mistakes can be made by comparing engines of different standards of durability and of different rating. The fact remains, however, that taking comparable four stroke engines the diesel can produce only 80 per cent of the power of a gasoline engine of the same capacity owing to its inherent combustion characteristics.

This disability can, however, be largely overcome by the use of supercharging, Supercharging can, of course, also be applied to gasoline engines but the diesel is much more amenable to it and the gains obtained in it are relatively greater. So much so that as the degree of supercharge increases the differences in specific output between the two types decrease considerably.

The diesel is particularly amenable to turbo-supercharging which has made very rapid strides in the commercial automotive diesel field in the last two or three years. By using an exhaust driven supercharger, increases in horse power of up to 50 per cent are being realized with virtually no loss of efficiency, for the energy which is taken out of the exhaust to drive the supercharger otherwise would only go to waste. In connection with this, it would not be in the least surprising to find that the Russians have increased the output of their standard tank diesel from around 600 b.h.p. to 900 by these means.

Another way in which diesels can be made more competitive on a power to bulk basis is, of course, by building them in the two-stroke form. A high powered two-stroke gasoline engine is a somewhat dubious proposition but there are many successful two-stroke diesels and considerable further progress in this field has been made recently.

Ultimately we might see a simple two-stroke diesel combined with gas turbine components to form a very attractive compound power plant. In such a plant the piston part and the compressor would form a high pressure gas producer but the useful external power would be developed at a turbine rotor. Theoretically, such a unit would have the advantages of both, that is, the efficiency of the high compression diesel and the smooth torque multiplication of the gas turbine, without incurring the disadvantages of the "pure" gas turbine made up only of rotating components.

Fuel Economy—The Big Advantage

Against the disadvantage of the somewhat lower specific output relative to the gasoline engine, the diesel has one great advantage—fuel economy!

Comparing the latest types of automotive engines at full load, the diesel is about 20 per cent more efficient on a lb. per b.h.p. per hour basis. At part load it is better still and since all automotive engines run a good deal of the time at part load the overall fuel economy of the diesel is much greater. On a mile per gallon basis, it is usual to find on trucks that the average fuel consumption is just about halved by changing over from a gasoline engine to a good diesel. In other words, the vehicle can go almost twice as far on a given quantity of fuel with a diesel as with a gasoline engine!

Not all diesel engines are alike, of course. The greatest single factor which affects the performance of diesel engines is their combustion systems, which make them vary from each other almost as much as they do from gasoline engines. At one end of the scale, for instance, are engines employing the Lanova air-cells and the precombustion systems, such as the one used on the Caterpillar tractor engines. These are least exacting (and therefore most rugged) as regards their fuel injection equipment but relatively heavy on fuel. Then come the intermediate turbulence or swirl chamber engines, such as the Rover Meteorite and the Waukesha commercial engines using the Ricardo Comet Mark III chambers, and similar systems used on Hercules and Deutz engines, which are capable of high specific output with clean exhaust and reasonable fuel economy. The most efficient but also the most exacting on their injection equipment are the direct injection or open chamber engines. Into this category fall virtually all modern high speed British automotive engines and some of the latest American diesels too. Earlier examples are the Soviet V.2 tank engine and the General Motors two-strokes, the latter being inherently somewhat less efficient on account of the two-stroke cycle of operation. However, even then, the General Motors diesel engined M3 and M4 medium tanks consumed only 60 per cent of the fuel required by the gasoline engined models of these tanks.

It used to be argued that the fuel economy of a diesel was more than offset by its lower power to bulk ratio and that it was not worth having unless the tank was meant to operate a good number of hours between refuellings. On paper such slide rule methods of equating so many cubic feet of engine space against so many cubic feet of fuel tank capacity looked fine. But in practice, in any given type of tank, it would have been much better to accept the slightly lower maximum horse power of the diesel engine and almost double thereby the operating range of the vehicle.

High nominal horse power per ton figures and spectacular test track speeds are certainly impressive but in the field the mobility of armored vehicles depends far more on their ability to keep going with the minimum of refuelling and attention. There, obviously, the low fuel consumption of the diesel and its reliability score heavily.

As regards high fuel consumption it is a handicap not only to individual vehicles but also to whole armored formations. The necessity for frequent refuelling slows them to a tactically intolerable extent and ties them down to their tankers which are vulnerable and themselves consume large quantities of fuel. The necessity for frequent withdrawing to refuel consumes a good deal of fuel just to carry out that operation. More fuel needed by combat vehicles means more tankers, more tankers means more fuel for them and bigger service units, and so on. In consequence, the overall fuel requirements of an armored formation grow to fantastic proportions, reducing greatly its freedom of action.

Moreover, large fuel requirements are not only a drag on mobility when fuel is available but the supply of vast quantities of fuel at all times cannot be taken for granted. And when the flow of fuel is interrupted the mobility of the fastest vehicles is reduced to zero!

That this can happen even when things are going well was shown dramatically during 1944 in Europe, when Allied armored formations were stopped because they outran their fuel supplies rather than because of enemy resistance. Under less favorable conditions the results can be disastrous and on more than one occasion have led to the annihilation of the immobilised armored unit. Examples could be quoted but it is obvious that the greater the operating radius of individual vehicles and the less the fuel requirements of whole units the less are the chances of that happening.

Serious as they were in the past, all the difficulties associated with large fuel requirements are likely to grow still worse in the future in view of the increasing range of operations rightly demanded of armored units, the necessity of dispersed operation and the growing vulnerability of supply lines and fuel dumps to all forms of attack.

Greater Effort Needed

In view of the manifest advantages of reduced fuel requirements which result from the use of more efficient power plants, advantages which are likely to grow in importance, there seems a stronger case than ever for tank diesel engines. The apparent lack of success of the tank diesel so far cannot be taken as an argument against their future use. In fact, it would be no exaggeration to say that tank diesels have not yet been given a full and fair trial.

Probably the most striking feature of the history of tank diesels reviewed earlier is the limited amount of effort which has been devoted to them. British development, for instance, was limited almost entirely to adaptations of commercial engines which were definitely unsuitable but which were used because no others were available. In the United States on the eve of World War II the diesel question revolved round one not-too-successful adaptation of an aircraft design, which was backed by limited technical resources. The only engine used in quantity was the General Motors two-stroke, which was well proved but which, from the tank point of view, was also only an adaptation. It could hardly be taken to represent the optimum in development.

Given adequate resources there is no doubt that a highly satisfactory tank diesel engine could now be evolved. With such an engine and a reasonably efficient transmission, in place of some of the current torque converter types, vehicle operating efficiency could be raised from the 10 to 20 ton-miles per gallon to 40 or even 50. This would increase greatly the operating range of individual vehicles over the present unsatisfactorily low level and reduce considerably the overall fuel requirements of armored formations. With a more widespread dieselisation the fuel requirements for a typical 100 mile armored division move could easily be reduced from around 300,000 gallons down to about 100,000 gallons.

These are surely points well worth considering, and the development of a tank diesel engine well worth all the effort which can be devoted to it.

U. S. Army

☆ ☆ ☆ ☆

GENERAL MAXWELL D. TAYLOR

United States Army Chief of Staff

The U. S. Armor Association welcomes this outstanding leader, both in combat and in peace, as the Army's new Chief of Staff. To his predecessor, General Matthew B. Ridgway, an equally outstanding leader, goes our sincere thanks for a job well done.

TO THE MEMBERS OF THE UNITED STATES ARMY:

In great soberness of spirit I have taken the oath of office of Chief of Staff of the United States Army. Because of the importance of the mission of the Army to the welfare of the nation and of the free world, this office entails heavy responsibilities for the incumbent. In such times as these, the Army must be well trained, well equipped and well led by men of courage and of vision if it is to provide security of the quality and degree which the situation requires. It must be a flexible, all-purpose weapon ready for all emergencies, large and small. Its tactics and procedures require constant scrutiny to assure that they anticipate to the degree which human foresight permits the requirements of possible conflict in the future. Such are the challenging obligations which rest upon all of us who wear the Army uniform.

A Chief of Staff would have reason to pause before taking up such responsibilities were it not for the ability and loyalty which abound in the ranks of the Army. Ours is a proud institution to which it is an honor to belong, an institution of great material and spiritual resources. Reinforced by the knowledge of these reserves of strength which stem from every corner of the world where the Army serves, I undertake the task of Chief of Staff with confidence that the United States Army will continue to meet the requirements of the future in the same way that it has met the challenges of the past.

MAXWELL D. TAYLOR
General, U. S. Army
Chief of Staff

To provoke thought and stimulate interest in our profession is our aim.
How the authorities at West Point met this challenge is indeed an interesting story.
It may also serve as a base for any group to build on in their own professional development.

A SEMINAR ON MOBILITY IN WARFARE

by

SECOND LIEUTENANT HARVEY L. GARN

and

SECOND LIEUTENANT DAVID DREW GILPATRICK

IT has often been said that the success enjoyed by a nation at war is a direct measure of its activity in time of peace. A continuing reappraisal of past experiences merged with the technological progress of the present and the anticipated developments of the future is the nucleus of this peacetime activity. The dangers of following either time-proven techniques or modern panaceas at the expense of the other can be equally disastrous. The professional soldier who is required to develop the techniques for future battles can not afford to ignore the lessons of the past nor can he fail to grasp the impact of scientific progress in the future.

In an effort to assist USMA cadets in developing a sound professional base, a group of officers at the Military Academy under Colonel Michael S. Davison, Armor, recently conducted a seminar which examined the concept of mobility as it has developed in peace and war. This seminar proved so stimulating to both the officers conducting it and the cadets who participated, that it was felt it had a valuable application to officers on duty with troops. Too often the newly commissioned officer finds himself submerged in the everyday business of his current assignment. Frequently this preoccupation prevents the officer from grasping the underlying fundamentals which dictate his every move. An informal seminar such as described herein can assist the broad development of the young officer, provide an invigorating diversion from daily routine, improve communication, camaraderie and mutual understanding within a unit, and most important, insure the continuing peacetime development of leaders who grasp the fundamentals for tomorrow's wars. The mechanics of the seminar described below can be readily adapted to units in the field. Such a seminar can be held at company, battalion or combat command level. The frequency of meetings can vary with available time. Topics and readings can be adjusted to suit the bibliography available in local libraries. The book bibliography is published at the end of this article to assist anyone interested in setting up a similar study group (see *Figure* 3). In addition selected readings from military magazines and pertinent Department of the Army pamphlets available in the library were utilized.

SECOND LIEUTENANT HARVEY L. GARN, Armor, graduated from the Military Academy this past June and has chosen the mobile arm as his basic branch. During his first class year he was a Cadet Captain and Battalion Commander. He is a qualified Rhodes scholar and will enter Oxford this Fall.

SECOND LIEUTENANT DAVID DREW GILPATRICK, Armor, graduated from the Military Academy this past June and likewise has chosen the mobile arm as his basic branch. During his first class year he was a Cadet Captain and Brigade Training Officer. He will report to Fort Knox this coming Fall.

MEETING	**SUBJECT**
1—	**Mobility Prior to World War I**
2—	**Mobility, World War I and the Interwar Period**
3—	**Eastern Front, World War II**
4—	**Western Front, World War II**
5—	**Resume, World War II**
6—	**Korean War**
7—	**Current Thinking**
8—	**Future Wars**

Figure 1.

From the earliest times, the problem of achieving mobility, or more properly, relative mobility, on the battlefield has been an object of study by professional soldiers. In recent years, with rapid developments in all types of weapons, the problem has been compounded and is mentioned prominently in almost any discussion or article about modern warfare. It is more often mentioned than defined, however, and a clear-cut definition is difficult to find. Each individual has his own conception of "mobility" and in an effort to consolidate some of these thoughts and ideas, a group of interested officers and cadets at the United States Military Academy met together this past January to organize a seminar on mobility in modern warfare. This seminar was one of eight sponsored during the winter period by the West Point Debate Council and Forum on subjects of interest to the Corps of Cadets. In order to establish a framework for discussion, the following areas were outlined for development:

a. The development and progress of mobility in the employment of Cavalry (Armor), Infantry, Artillery, Signal, and Engineers.

b. The development and progress of mobility in the employment of the tactical air-ground team.

c. The development and requirements for staff action in mobile warfare, and more specifically, the development of the mission-type order.

d. Possible characteristics of the war of the future.

The lack of practical experience of the participating cadets was a limiting factor in our discussions. This lack was balanced, however, by the wealth of experience which the officers brought to the forum. These men were all extremely interested in the subject, guided the discussions, and were largely responsible for the success of the program. They were always on hand to offer for consideration an actual problem in mobility which tended to keep the discussions from wandering off into flights of fancy.

The seminar met once a week, for eight weeks, with each meeting under the direction of a single officer. The scope for each of the eight meetings is shown in *Figure 1*. The meeting would open with a few remarks by that officer, followed by a round table discussion of assigned readings and any additional points which members of the group wished to consider. In order to develop an appreciation for the mobile concept, an historical approach was used in which military leaders of the past were studied and their actions and attributes discussed. In studying these leaders, we attempted to determine what factors and/or techniques made them more successful than their contemporaries.

In the pre-World War II period, we discussed such great military leaders as Hannibal, Alexander, Frederick, Napoleon, Jackson and Stuart. Each of these men understood how to maneuver the equipment and forces which they commanded in such a way as to have a superior force at the decisive point or area, which is the objective of all operations. It is significant to note at this point that these leaders did not achieve their superiority by strength of numbers alone. In fact, many of them fought successfully with forces that were consistently outnumbered by their foes, achieving their successes by maneuver and surprise, gained by rapid movement to and on the battlefield.

The World War I period offered fine examples of mobility on one hand, and the lack of same on the other. Among the operations discussed were the "Schlieffen Plan" sweep of the German armies into France, and the early tank operations at Cambrai and Amiens, with their successes and failures. Also considered were Allenby's operations in the Near East, and his contribution to the mission-type order concept, which is so important in today's mobile operations.

The period between the two world wars was a productive one for men who were thinking in terms of mobility. Among the leaders who figured prominently in our discussion of this period were J. F. C. Fuller, B. H. Liddell Hart, and the "Father of the German Panzer Army," Heinz Guderian. These men recognized that the development of the tank had ushered in a new means of achieving relative mobility. They recognized that new types of equipment demand a reorientation of ideas and organizations. The successful application of these principles to warfare was aptly demonstrated in the early stages of World War II with the advent of "blitzkrieg" warfare.

World War II offered us many examples of successful mobile operations, and leaders who understood the value of achieving relative mobility. The German invasions of Poland, France and the initial phases of the invasion of Russia are excellent examples of this thinking. Conversely, the inability of the Germans to adapt their thinking and equipment to mobile operations in winter played a large part in their eventual defeat in the East. Our own invasions of Normandy and the islands in the Pacific are fine examples of mobile actions. The race across France, the battles west of the Rhine and finally the crossing of the Rhine were also considered. The importance of airborne operations in any discussion of mobility was explored by the seminar in discussing such operations as the German drops on Eben Emael and Crete, and the Allied operations in Normandy and the Arnhem area.

This historical survey was con-

OUTLINE FOR A "MOBILITY YARDSTICK"

1. How was mobility reflected in the **strategy** of the war?
    - a. Was rapidity of movement generally greater than that of the enemy?
    - b. Was there a tendency to mass superior strength at the critical point through movement?
    - c. Were geography and climate conducive to mobile operations?
2. How was mobility reflected in the equipment employed?
    - a. Were primary weapons and vehicles suited to mobile operations?
    - b. Were all weapons and vehicles geared to same capacity for speed, maneuverability, and coordination?
    - c. Were there sufficient numbers of weapons and vehicles to maintain mobility?
    - d. Was there adequate communication, maintenance, and supply equipment?
3. How was mobility reflected in the **organization** of the fighting forces?
    - a. Was striking power concentrated rather than dispersed?
    - b. Was provision made for independent operation of combined-arms groups?
    - c. Were staffs tailored for mobile action?
    - d. Was efficient air-ground coordination provided?
4. How was mobility reflected in the tactics and techniques employed by commanders?
    - a. Were enemy lines of communication the first-phase objectives, leading to eventual destruction of enemy?
    - b. Were attack maneuvers based on breakthrough and exploitation, encirclement, or other non-linear methods?
    - c. Were defense maneuvers based on counterattack by mobile forces or some other form of movement?
    - d. Was momentum maintained after breakthrough?
    - e. Were subordinates given broad rather than detailed instructions? Was commander initiative encouraged?
    - f. Were provisions made for quick passage of obstacles?
    - g. Were strong defenses by-passed in initial thrusts?
    - h. Did supplies and maintenance keep pace with combat?
    - i. Was surprise emphasized?
    - j. Was all-round security plus adequate warning employed?
    - k. Was simplicity emphasized in plans and operations?
    - l. Were command groups kept small, in forward areas, and capable of flexible action?
    - m. Was traffic control emphasized?

Figure 2.

cluded with a brief look at the Korean War and the applications of mobility in that theater. The landing at Inchon, and the Pusan breakout were discussed and terrain appreciation greatly emphasized.

In conjunction with this survey, we attempted to apply a "mobility yardstick" to the operations under consideration, in an effort to contrast and compare these actions. This "yardstick" was concerned with strategy, tactics and techniques, equipment, and organization, and in many cases enabled us to nail down just what was, and what was not, present in the way of mobility. This yardstick was also applied in our later discussions of future warfare and operations. *See Figure 2.*

Upon completion of this first phase of our seminar, we attempted to apply some of the lessons we had learned to the possible war of the future and to determine the impact of the atomic era on traditional tactics. Our entry into an era of nuclear weapons presents problems which demand above all a mental flexibility which can merge our time-proven principles and techniques with the weapons of tomorrow. Most certainly our approach must avoid the parochial pitfalls of branch or service rivalry as well as the dangers of "pushbutton" cure-alls. Our direction must be progressive, practical and timely. We noted a tendency among atomic thinkers to present the nuclear weapon as absolute in itself, even negating the timeless principles of warfare. As a weapon the atom bomb must be absorbed in our strategy, and our principles and techniques altered to insure its most decisive employment. We are convinced that the concept of mobility which the members of our seminar examined emerges as a key ingredient of the final product. Of course the real test of the value of this historical approach will come if and when we are called upon to put the principles learned into practice. However, all of the cadets who participated in the program feel that it has aided significantly in understanding what the mobile concept is, and what the problem of achieving mobility demands in the realm of leadership.

One fact that stood out above the others was that use of a given type of equipment on the battlefield is not the only factor which determines which side has relative mobility. The principal factor was the leader who knew how to utilize to the utmost the equipment available to him, and who was flexible enough in his thinking to visualize changes which became necessary when equipment or weapons changed. We felt further, that speed of reaction, coordination at all levels, a high state of unit training, and active progressive leadership were demanded of all commanders who hoped to utilize the mobility of their commands to achieve decisive results on the field of battle.

We certainly recognize that our small group did not reach any startling conclusions or unearth some well-hidden military truism, and such was not our objective. We feel, however, that we have stimulated interest, improved understanding of military problems through discussion, and developed an appreciation for the mobile concept that we did not have when we started. In conclusion, we also feel that this method of approach to the techniques of war and leadership can be of value to other groups with common interests in these fields, wherever they may be. The interchange of ideas and experience in this organized, yet informal manner enabled those participating not only to gain valuable knowledge but also to develop their own ideas and thinking to a greater extent than could be done in a class on tactics. As has been mentioned above, the true value of our discussions will only become apparent to practical situations, yet we believe that this seminar on "Mobility in Warfare" has given us a sound basis for future work in this field.

In conjunction with the above article the seminar study group used many Department of the Army pamphlets and professional articles which have appeared in various service journals. Due to the lack of space it was not possible to list all of them, with the exception of those that appear in the selected book list in Figure 3. Anyone who is interested in starting a similar seminar study group and desires a list of the pamphlets and articles used may obtain them by writing to the Editor of Armor 1727 K Street, N. W. Washington 6, D. C.—Ed.

LIST OF SELECTED BOOKS

An Introduction to the History of Tactics—1740-1905
    By Captain A. F. Becke
The Framework of Battle
    By John G. Burr
The Grand Alliance; Closing the Ring; Triumph & Tragedy
    By Winston S. Churchill
From the Danube to the Yalu
    By Mark W. Clark
Masters of Mobile Warfare
    By Elbridge Colby
General Dean's Story
    By Major General W. F. Dean
Makers of Modern Strategy
    By Edward M. Earle
Instructions for His Generals
    By Frederick the Great
Memoirs of an Unconventional Soldier; Foundations of the Science of War; Reformation of War; On Future Warfare; Machine Warfare; Armored Warfare
    By J. F. C. Fuller
Soviet Military Doctrine
    By R. L. Garthoff
History of the German General Staff
    By Walter Goerlitz
Panzer Leader
    By General Heinz Guderian
Combat Actions in Korea
    By Captain R. A. Gugeler
Strategy; Paris, The Future of War; Remaking of Modern Armies; Science of Infantry Tactics; When Britain Goes to War; Future of Infantry; Europe in Arms; Thoughts on War; German Generals Talk; Current of War; The Other Side of the Hill
    By Captain B. H. Liddell Hart
Stonewall Jackson and the American Civil War
    By Colonel G. F. R. Henderson
War in Korea
    By Marguerite Higgins
The Peculiar War
    By Ely J. Kahn, Jr.
Battle Report, the Korean War (Vol. V)
    By Capt. Karig, Comdr. Cagle, Lt. Comdr. Manson
Korea, 1950
    By Office of the Chief of Military History, D/A
War on Wheels
    By C. R. Kutz
Napoleon and Modern War
    By Colonel C. H. Lanza
River and the Gauntlet
    By S. L. A. Marshall
The End in Africa
    By Alan Moorehead
Studies in the Napoleonic Wars
    By Sir Charles Oman
A New Look at Offensive Tactics
    By Reinhardt and Kintner
The Rommel Papers
    By Manfred Rommel
Defeat in the West
    By Milton Schulman
A Military History of World War II
    By Stamps and Esposito (ed.)

Figure 3.

The Privilege of Command

ARMOR has often been called the "Arm of Decision." Without attempting to belabor the point, it would seem that officers who support this philosophy—particularly the officers in the Armor branch—would be imbued with this motto to the extent that each and every one of them would be so guided in all his actions as to reflect this as his basic motif. He would further know that "deliberate planning followed by violent execution" is also a hallmark of the mobile branch. The question arises as to whether this fundamentally sound principle should be confined to the successful seizure of Hill X, Town Y or River Z, or whether it has equally important application in the planning of an Armored officer's career. It appears, on and under the surface, that the latter principle applies. The officer's career is enmeshed in every daily task and every action taken. To delineate this principle from an officer's career and apply it only to tactical situations is fallacious.

Many will recall at that "Citadel of Armor," The Armored School, map exercises with objectives 10-20-30 miles deep are developed for Armored Divisions. We are taught that in Armor we must have long-range vital objectives, not objectives that are only as far as the eye can see—the next hill, the immediate crossroad, or the clump of trees on the horizon. Equally true is the fact that we must not plan our careers on a short-range objective—thinking only of the next assignment—the next move—the housing situation—and all the other short-range problems. Nor must we rely on the next higher headquarters to achieve our objectives for us. Career Management, like any higher headquarters in the field, can provide guidance, limited support and objectives to be reached—but the decisive action rests in our hands. Only we can, through our careful advance planning and deliberate action, reach the objective.

What is your objective, and mine? Is it the next hill (your next assignment), the hope of being in reserve again (repetitive staff or comparable "lush" assignments), or the long-range vital objective of being a superior officer, ready and able to assume responsibility for important command? The planning and decision rely solely on the individual.

In applying this yardstick to the combat arms officer it should measure all levels of command. Thus, it behooves the aspiring newly-commissioned officer to seek out command assignments early in his career. No one is more privileged than the young officer with his first command. As he gains experience his command reflects his thoughts, his personality, his ingenuity and his character.

Many World War II combat experienced officers can reflect their early trials and tribulations in combat. How many of us have said, "If only we had done it differently" or "If only we had the experience which we gained after we were in combat." Many of us remember our junior officers and non-commissioned officers looking to us to make the decisions upon which many lives were entrusted. In advising our junior officers today as to their careers the best advice we can give is to gain experience in *command*, *command* and *more command*!

There is no intent here to underestimate the importance of staff work. But no one can deny the fact that the staff officer who has been in command at various echelons along his career pattern can better serve his commander because of his command experience. His appreciation of the subordinate units will make him do a better job as a staff officer. In return, for staff services well rendered, the units concerned will have higher morale, and be more efficient when called upon to accomplish a mission.

Much has been written regarding the steps required to become successful commanders. We often hear such expressions as "well rounded" career patterns—"progressive assignments through the echelons of command and staff"—even such deferential expressions as "some people have it, some don't." Significantly, however, few officers have ever been successful troop commanders—division—corps——and Army—who did not seek and cherish smaller unit command. Significant also is the fact that although brilliant staffs have been known to materially aid operations and campaigns—such staffs can do little when led by inefficient commanders. Conversely, however, superior troop conmmanders can, and have, effectively employed troops in spite of mediocre staffs. The command, regardless of size, is a reflection of the commander, not the staff.

It would therefore appear that Armored officers who have a real dedication to proving that Armor is indeed the "Arm of Decision" should set for themselves the long-range objective appropriate to Armor—the command of major Armored formations. To achieve this objective, careful planning is required, including the maximum of Armor troop assignments. It would pay us well to review periodically our objectives to determine whether our career "goose egg" is the next hill we can see, or the "large enemy force just off the map."

Sum & Substance

A regular feature in ARMOR, where you may express your views in approximately 500 choice words—the effective medium between the letter and the article. This section is open to all on any subject within the bounds of propriety. Name and address must accompany all submissions. Name will be withheld upon request. No pseudonyms.

To point up the advantages of Armored Artillery, organic to an Armored Division, is the intent of this series of articles. To obtain this valuable information we turned to the Division Artillery of the 4th Armored Division stationed at Fort Hood. In addition to the capability of delivering a tremendous amount of firepower, Armored Artillery can displace and move rapidly in support of an Armored attack or defense. As emphasized by one of the authors, flexibility of mind assists the Armored Artilleryman in accomplishing his mission.

The writer of the following article, a 1935 graduate from the Military Academy, has spent most of his troop service with mounted artillery, both horse-drawn and armored. During World War II he commanded the 3d Armored Field Artillery Battalion, 9th Armored Division in Europe. Subsequent to the war and following several staff and school assignments he became Director of the Department of Tactics and Combined Arms, The Artillery School, Fort Sill. Since graduation from the Army War College he has been the executive officer of the 4th Armored Division Artillery.

Armored Artillery

Some 3150 officers and men of the armored division comprise the Division Artillery. It is the largest single command within the division. This command, unlike a combat command, normally retains the same composition, is designed to assume greater administrative and logistical responsibilities, and by virtue of the efficacy of massed fire support frequently retains command of its battalions even though they may be physically grouped within the combat commands.

Armored artillery is characterized not by a technical system of employment peculiar only to armored divisions but more by a state of mind accustomed and prepared to execute a variety of plans with rapidity and to accept unusual or abnormal missions with poise and competence. Great flexibility of mind and of organization is essential. Since armored artillery functions tactically in small groups, even down to separate vehicles, decentralization of control and increased reliance on the dependability and leadership of junior officers and noncommissioned officers are prerequisite.

Armored artillery is quite mobile, true, but that does not imply haste nor blinding speed—in its true sense *mobility is a state of mind* and not the possession of cross country vehicles. Its greatest assets are: its ability to occupy position and displace rapidly; the protection from small arms and shell fragments it offers to battery personnel; and its marked ability to defend itself *while moving* as well as when in position. These assets constitute its value rather than merely the fact that its vehicles are self-propelled. Actually in terms of time economy, self-propelled artillery achieves its greatest return in the heavy calibers of corps artillery.

Too frequently it is apparent that many Armor officers lack a full appreciation and concept of armored artillery's capabilities, and limitations, and the requirements necessary for it to execute its support mission. This must be rectified at all echelons lest essential teamwork be lost. The artillery is a vital and powerful force available to armor; its commanders must be kept apprised of contemplated plans at all echelons although the method of execution of the artillery's role must be left to the artilleryman who is trained for just that job. Much of our present Armor commanders' combat experiences are based on the closing phases of World War II when exploitation and pursuit were the rule and a hard fought fire fight requiring heavy and concentrated fire support the exception. We are inclined to remember the glory and forget the difficult, critical times. Armor in Korea approximated the use of individual tanks and platoons. As a result, fire support requirements and the close teamwork required to plan and deliver this support are often overlooked or not fully understood even by the relatively experienced tanker. This is due to no particular remissness on the part of the tanker but mainly to the course of World War II and Korea, and to some extent on too great a reliance on the invulnerability and infallibility of the armored arm.

Since the tank gun is a direct fire weapon, Armor officers often fail to comprehend fully the variety of techniques and skills and the time required to teach and develop them, which are requisite to the delivery of observed or unobserved massed fires by indirect fire weapons. Too often in combat, in maneuvers, and in training, ignorance of the proper role of artillery has been displayed by commanders and staffs who should know better. Armored artillery *can* do almost anything on the battlefield, but it is *designed* to be used for close support of armor and armored infantry by the use of indirect massed fires.

Our past enemies can best attest to the effectiveness of such employment. This is achieved by the artillery's organization, its *own* system of communications and by centralized control. Artillery is the means most readily available to the division or corps commander to influence the course of battle—and—it is a means under *his* immediate command. For this reason the supporting artillery commander or his representative can best support and advise the combat commander when both work and live in propinquity and both plan together. This principle, recognized by all and taught at all service schools, strangely enough is followed closest at the platoon and company level, only to be disregarded more and more the higher the echelon of command. The artillery commander is fully as valuable to the combat command and division commander as the forward observer to the company commander. He is part of the team and should be treated as such in work or play.

The multiplicity of weapons with their vastly increased lethality present in a modern army has emphasized as never before the absolute necessity of a complete integration of the plan of fire support with the plan of maneuver, and the rapid, efficient coordination of *all* available means of fire support to best accomplish a given task *within the required time*. The artilleryman at each echelon is the coordinator for the commander of the available fire support. This implies not only organic antiaircraft and field artillery but attached or reinforcing medium and heavy artillery (some of which can deliver nuclear shells, missiles, or rockets, day or night without regard to weather), tactical air, and in rare cases naval gunfire. It is in this relatively new field of responsibilities that the value of the artilleryman to the armored commander has been greatly enhanced, not only by increased massed fire support but by affording an efficient focal point for the reception of a mass of vital combat information or raw intelligence.

Certain new concepts in divisional organization advocate a reduction in the organic artillery of a division almost to a point of impotence. Whatever nebulous attributes this concept may have, they are not applicable to the armored division. By its inherent characteristics and typical employment on independent, self-reliant missions, the armored division could well use more rather than less organic artillery. These missions require the highest in skilled training, timing, teamwork, coordination, and mutual confidence between units. Such is developed only through months of combined training, maneuvers and combat and is based on a deep sense of unit esprit and loyalty to the division. It can not be achieved by a unit attached to a command just prior to an operation regardless of the excellence of the attached unit.

All photos U.S. Army

Colonel George Ruhlen

There are not too many artillerymen in the Army these days who are veterans of World War II armored divisions. Little has been published or taught at service schools on armored artillery—probably due to an invalid assumption that the only difference between armored and towed artillery is the direction of tilt of the garrison cap. They are *similar* but not *identical* in techniques and employment. The failure to appreciate the nuances of this statement often presents problems to the armored artilleryman. For example, the tables of organization for infantry division artillery and armored division artillery are practically identical. Both allot nine forward observers and three liaison sections per light artillery battalion. In the infantry division this neatly provides a liaison section per rifle battalion and a forward observer section per rifle company; but the battalions which armored artillery supports have *four* combat companies and it is not unusual to find *four* battalions attached to a combat command, so the armored artilleryman finds he has to modify the basic organization given to him in order to begin to accomplish his mission. Thus what works well with one may or may not be equally successful with the other. Consequently it is mainly through unit schools or by articles in service magazines that a true understanding of armored artillery techniques can be gained.

Twenty and thirty years ago, the "horse artillery"—which supported cavalry divisions and in which all personnel were mounted—were most articulate and certain that they not be confused with "horse *drawn* artillery"—organic to infantry divisions—in which cannoneers rode the carriages. The "horse" artilleryman prided himself that he customarily manuevered and occupied position at a gallop compared to his slower moving cousin; he considered himself as accomplished a horseman as his cavalry teammate (although generally not as well mounted)—a fit successor to the famed "flying artillery" of Mexican War days—and his bearing, appearance, and esprit reflected this self-esteem. Armored artillery is the true descendant of horse artillery in mission, employment, flexibility, and mobility of mind. The *true* armored artilleryman is the modern version of his legendary colorful older brother of a bygone day.

COLONEL GEORGE RUHLEN

The writer of the following article served with the 14th Armored Field Artillery Battalion, 2d Armored Division in Europe throughout World War II. Subsequent to the War he served in the Office of the Chief of Staff, Department of the Army. After attending The Artillery School he returned to Europe where he served in USAREUR headquarters, later commanding an artillery battalion. Since June 1954 he has commanded the 22d Armored Field Artilllery Battalion, 4th Armored Division. He is presently en route from Fort Hood to the Command and General Staff College, Fort Leavenworth.

Artillery Notes For Armored Commanders

Today there appears to exist to a considerable degree among armored commanders what might be termed misconceptions concerning the characteristics and requirements of their supporting artillery. Practically all, or at least those with combat experience, readily concede that the most effective method of bringing powerful, direct-fire weapons sufficiently close to the enemy to destroy him is to maneuver under cover of strong, massed artillery fire. Yet it develops that many of these same commanders have incomplete first hand knowledge of some of the basic problems peculiarly attendant to the ultimate utilization of this powerful weapon. This is understandable for there are no current texts on armored artillery and, in fact, little is taught at service schools about the peculiar characteristics of this type of artillery. The Artillery School notwithstanding, armored artillery is *different*—not so much in problems of gunnery and basic organization, but in equipment and, particularly, in manner of employment. It is concerning this latter difference, the manner and problems of employment, that the armored commander needs to acquire greater understanding if he is to obtain the type of support that will permit his attack to be both economical and decisive.

In the normal offensive situation one or more of the light armored artillery battalions of an armored division are generally placed in direct support of the attacking combat commands. Centralized command of all artillery is maintained by Division Artillery as long as this type of command can accomplish the massing of fires in support of every attacking element. When this becomes impossible, due to distances or difficulties of communication, one or more of the light battalions may be attached to the combat command (or reinforced battalion) which cannot be supported adequately. The remaining artillery is then given reinforcing or general support missions reinforcing these battalions which are in direct support or attached. However, the supported unit or combat command commander should not be too concerned about the niceties of "attachment" or "direct-support"—the fire will come down on the targets in either case if he will take his artillery officer into his planning confidence and rely on the artilleryman's judgment as to the available artillery. By so doing he can be assured that his supporting artillery is more than the battalion(s) in direct support or attached. Rather, it will be all of the artillery that can reach the target and which can be released to fire on that target, including Honest John rockets, Corporal missiles, 280mm guns, as well as other indirect fire weapons. The individual who will be able and capable of obtaining that added support will be his direct support artillery battalion commander for he alone, personally or through his liaison officer, is the combat command commander's artillery advisor and should be ever so regarded. A close personal relationship between these people is all the more imperative in armored units because of the inherent flexibility of plans and organization and the necessity for rapid execution of the unexpected. Such a relationship should come about naturally for the true armored artilleryman is the same "breed of cat" as the tanker and the armored infantryman in that he has the *Armored Attitude* so imperative for the armored soldier. He has a thorough and profound knowledge of the way armor operates and fights. He is indoctrinated with a *mobility of mind* which enables him to capitalize fully on the inherent mobility and flexibility of the armored division. He, too, is imbued with the idea of invincibility and boldness to the point that he is convinced his outfit is literally *self-propelled Hell*. He can do all of the things required of the Infantry Division artilleryman but he is faster and more aggressively flexible, he is truly the elite corps of the artillery and he knows it!

Once a partnership based on mutual confidence comes into being between these individuals, the artillery problem of the combat command commander is virtually licked. Even so, there are a few additional basic tenets outlined below which he should keep in mind in his planning of an operation—points which should become SOP and which he should make certain are fully understood and implemented by his staff and all subordinate commanders:

1. The cooperation required between an armored task force commander and the battery commander of a battery which has been separated from its parent battalion to support the task force is the same as that required of a combat command commander and the artillery battalion commander. Inasmuch as such an operation is common practice in armor, far greater emphasis is placed on battery fire direction in armored artillery and each battery has a higher degree of operational independence and self-reliance than in conventional artillery. Each battery has the capability of massing the fires of its own and several other battalions through its fire direction center. The task force commander can thereby be assured of the massing of all available artillery on the spot desired and not just that of the battery with his task force.

2. Armored artillery must be marched well forward in the column or leapfrogged well in range of the objectives of the elements at *all* times, and plans and consideration should be given to road priority for displacing artillery. This is necessary to support sudden tank thrusts or breakthroughs. It also permits the artillery to take advantage of the security afforded by the proximity of heavily armored elements.

3. It is important that the artillery liaison officer be kept close to the supported unit commander at all times—always in sight and hearing and kept fully informed of all plans. In addition to placing and controlling the forward observers, the liaison officers with the battalions will formulate the close-support fire plans with the supported battalion commander to insure that artillery fire support is closely coordinated with the maneuver. Moreover, these liaison officers will have communication with the artillery observation planes maintaining surveillance over each task force column and can be utilized profitably as a source of information as to both friendly and enemy movements. They will also coordinate closely with the forward air controllers in controlling air strikes.

4. The forward observer *must* be provided with a tank and workable communications equipment identical to his supported company commander. He also must remain as near this

commander as feasible and be included in his planning. He should be protected insofar as possible and never unnecessarily exposed or forced to fight his tank at the expense of neglecting his primary mission of furnishing artillery support. The forward observer will serve as a valuable source of tactical information as he will also be able to contact the artillery observation planes for information and help in observation and adjustment of artillery fire.

5. Artillery battalion ammunition trains, under command of the artillery ammunition officer, may often march with and be under control of the combat command combat trains commander. However, it is necessary that he be released from this control on his request, for they shuttle more than other trains. Nothing must be allowed to interfere with the forward movement of artillery ammunition.

6. Orders for the employment of the artillery must pass *directly* between the respective commanders and *not* through staff officers, for the support role of the artillery must never be confused with that furnished by technical services such as quartermaster, ordnance or signal units. The artillery are not service troops and object to its support being classed with that of a bath company or disciplinary detachment.

7. Finally, and most important, is the absolute necessity for the presence of the battalion commander of the supporting artillery at *all* planning conferences with the combat command commander. He must know first hand the detailed plans and not be informed of an intended action when the executing commanders are assembled for the issuance of orders. This will insure integration of the plans of maneuver and fire support. As fire support coordinator for the combat command he will work closely with the forward air controller in coordinating the use of tactical air missions and the artillery support as well as with division fire support coordination center. In short—this artillery commander should not be looked upon as a subordinate staff officer but as an advisor and joint-planner for the operation.

Careful consideration of the points discussed should effect a greater realization on the part of the armor commander that his supporting artillery requires special consideration if it is to insure him the means of permitting his maneuvering elements to close within effective direct fire range of the enemy. This, together with the knowledge that the armored artilleryman is a true armored partner whose sole purpose in existing is to furnish him adequate and timely artillery fire at the decisive points of action, will result in an invincible team capable of defeating and destroying any enemy force encountered.

LT. COL. JAMES H. DYSON

The writer of the following article, a 1942 OCS graduate, served in Europe during World War II as a battery executive and subsequently as battery commander in the 342d Armored Field Artillery Battalion, a separate battalion assigned to Seventh Army. Reverting to enlisted status after the war he was recalled to active duty in 1951. After a two-year assignment in Alaska, where he was S3 of an artillery battalion, he was assigned to Fort Hood where he has commanded Battery A, 66th Armored Field Artillery Battalion, 4th Armored Division since September 1954.

Challenge

The commander of an armored field artillery gun battery is met with a variety of challenges that test his knowledge, judgment, leadership, and endurance. To meet these severe prerequisites he must have a broad concept of firepower, close support operations, and battlefield depth. These are basic factors, but to exaggerate each would only tend to minimize *all* of the necessary requirements—for instance: the true meaning of flexibility and ground reconnaissance, and the flash priority of *Fire Mission!* The armored commander must always be aware of the million and one things essential to the efficiency and accuracy of his unit.

Captain George F. Wood

The gun crew, probably the least informed element of his command, must be afforded blow by blow front line intelligence. Who can describe the feeling experienced by the men when they hear, "target, vehicles and personnel destroyed: heavy casualties," or "mission accomplished." This is the pay-off to their long and exacting training.

Not being an expert in communications, I can only appreciate the true value of communications through experience with their intricate operations and leave you with a *fait accompli*. The modern Army can no more do without it, than can any phase of industry, sea, or air operations. Least of all, *Armor!* It is vital and becomes a life line in battle. Your system will only be as good as you plan it, service it, maintain it, and use it. Never be doubtful about your system. A commander who appreciates his communications has half his problems licked.

Most of you have been to a service school and are aware of the latest data. Your challenge is to apply this knowledge to the betterment of your unit. Train your men into teams, coordinate that vast amount of firepower from your primary and auxiliary weapons, maintain 100% firepower through meticulous maintenance. Insist on speed with accuracy, work out SOP's. Don't keep that training you have received a secret! Taken separately, none of these factors are easy, controlling them all simultaneously is even more difficult; but it is the ultimate result that counts, and this is what you must strive for.

All soldiers are mediocre until they understand their job and the desired results. Certainly, any man can be an artilleryman, but, in my opinion, he has only served an apprenticeship until he is assigned to an armored-artillery battalion. What is the difference, you ask. Here, he has more pride, *esprit de corps*, the will to win, and the acceptance of responsibility. Here are the Non-Coms, men that are specialists and leaders, trained to operate independently or as a team. Each is his own coach, trainer, and quarterback.

The artilleryman is a professional equal to the architect, engineer, lawyer and doctor. With the advancement of methods, techniques, and equipment, I am confident that the artilleryman, knowing his job, could sit down with any of the above mentioned professionals and keep them interested and responsive for hours. Here, there is pride!

When formal training cannot be conducted because of heavy administrative commitments, it is amazing that the armored artillery commander can successfully attain the required end results. Some of the training is accomplished en route. Applied psychology and flexibility of thought are the commander's assets during these trying times. Fortitude and supervision aid immeasurably in getting the high standards. No phase can be dismissed.

Whether working with a battalion or separately, the battery is equipped and ready to operate an FDC with accurate and duplicate firing charts. It is in the role of the latter that a battery proves its capabilities through firepower and close support. I have seen the tide of battle change with a commander's decision to utilize his supporting arm, the field artillery, even after deliberate plans were made disregarding fire support. The invitation is open to all to estimate an equal force after glancing at the firepower of a single armored field artillery gun battery. I witnessed a tank destroyer battalion operation that was sad, costly, and deadly for our side. It failed to utilize indirect armored artillery support, attached, and ready. The lesson was learned and never repeated from there on—but the lives that were unnecessarily lost can never be repaid.

Another responsibility, whether in position or on the march, is security. It is everyone's business but a constant challenge. The individual's viewpoint is: "Get a field of fire and a field of observation and you are in." But you, as the commander, check it, shift it and make it work defensively. A plan can work successfully for days, then suddenly fall apart. I recall changing defensive plans by using a German dozer which had no reverse gear. We proceeded to parapet each howitzer by traveling in small circles with the "awful machine" until the sides and front of the SP's were well protected; and each half-track had a sanitary-fill type trench. From this position we were able to divert a regimental size attack and break up a main effort by holding. Controlled firing was enforced on all weapons. It was a ticklish situation, to say the least, but we moved out two days later without serious damage or casualties from behind their front lines.

What makes a good armored artilleryman? A man well disciplined, who can qualify as an expert with his individual weapon, operate, maintain and accurately fire auxiliary weapons and efficiently perform his duties within his section. He must be aggressive, dependable, and take charge the instant the situation dictates.

Fundamentally, there are no differences between the different artillery units. However, the standards sought in armored artillery are a challenge; and so are the ultimate goals that commanders must meet to effectively mass fires, supports, and fulfill the armor mission.

CAPTAIN GEORGE F. WOOD

The writer of the following article served in Europe during World War II with the 480th Antiaircraft Battalion, a separate battalion which was attached to various Infantry and Armored Divisions. Since the war he has served in several Stateside assignments and prior to his present assignment he served with the Division Artillery of the 2d Armored Division in Europe. Since May 1954 he has been the Division Artillery Communications Officer of the 4th Armored Division.

Armored Artillery Communications

Captain James M. Landrum, Jr.

The communications problems of the artillery of an Armored Division are not unlike the problems existing in any comparable unit. They are, however, more acute in that mobility with prompt delivery of fire is demanded of an armored artillery unit. Without communications at all times a command has lost all reason for existence. These reasons being speed, flexibility, and the ability to bring accurate fire upon the enemy.

These problems, as I have said, are not peculiar to armored artillery, but each problem must be solved keeping in mind the effect that the solution may have on the overall communication plan. This plan naturally includes training of personnel, maintenance and care of equipment, and repair.

Training is a familiar term to all of us, but to the armored artillery communication officer this means that each man in the section must be a communication expert. They must be alert and well informed as to the capabilities and limitations of their equipment. They must be familiar with the equipment to the extent that minor equipment failures can be repaired on the spot. A radio mounted in an M75 or an M59 takes quite a beating and the operator must be capable of making any adjustments required. The ever increasing complexity of signal equipment has not lessened this problem.

Maintenance care of equipment, and repair cannot be stressed too much in armored artillery. A radio failure may mean loss of time or possible loss of an entire command. A special problem exists during field operations in that time is short, repairs must be made in cramped quarters, and supply of expendable items is often not available to repairmen. Present authorizations by signal catalogues are not sufficient to sustain a unit for an extended time and replacements are often slow in arriving.

With only eighty radio channels available to an entire armored division a radio traffic problem exists. By allowing only a limited number of stations in the artillery FM and AM command nets, radio traffic has been cut to a minimum. In keeping with this idea of reduced traffic the following radio nets are used in the Fourth Armored Division Artillery Battalions and Division Artillery Headquarters.

The battalion radio nets are as follows:

> The FM command channel affords the battalion commander control of his battalion and staff while moving or while in position; the battalion fire direction channel (FM) is the principal fire control channel of the battalion; the alternate fire direction channel (FM), the secondary fire channel of the battalion, is used for registration and for two or more task force type organizations; the battalion auxiliary channel (FM) is used for displacement, special fires, and single piece missions as required; and the battalion control frequency (AM) is used for command, control, or firing when FM range is exceeded, or in special situations as required.

The division artillery headquarters nets are as follows:

> The command channel (FM), used for command control of division artillery headquarters and direct contact with battalion commanders when required; division artillery fire direction channel (FM), used for fire missions, controlled fire, tactical information, and FSCC requests; alternate fire direction (FM) (this channel is auxiliary to FDC channel) to reinforcing groups as required; control frequency (AM), used for command control, reports from battalions and for fire control when FM range is exceeded.

The system of nets outlined above has proven a great aid in overcoming one of the problems of an armored division artillery by reducing somewhat the interference caused by units of the division operating on the same or overlapping channel.

In addition to the nets operated by division artillery headquarters and artillery battalions, stations are operated in the following nets:

> Division commanding general net (AM), commanding general division artillery as required; division command net number 1 (AM), executive as required; division intelligence net (AM), S2; division administrative net, FM (AM), S4; corps artillery zebra (AM), monitored by assistant S3; commanding general (FM), division artillery commanding general as required; division headquarters net or command net number 1 (FM), executive as required; division intelligence net (FM), S2 as required; corps artillery zebra net (AM), battalion assistant S3 as required; commanding general command (AM), battalion S2 (when applicable); and combat command command net (FM), battalion commander or executive as required. These nets, together with liaison sections, with each combat command operating on our own channel, afford excellent communications between division artillery and any supported unit.

Full advantage should be taken by armored artillery units of divisional TO and E equipment in the hands of their supporting signal company or battalion. I refer specifically to the radio relay equipment such as the AN/TRC-3 or an equivalent set and the radio set AN/GRC-126. These sets are furnished to combat commands by the division signal officer and offer an excellent alternate means of communication between division artillery and division artillery units attached to or supporting combat commands. Another means of direct communication between division artillery headquarters and its assigned and attached units is the AN/ARC-8 section of the AN/MRC-20. This offers unlimited possibilities as it is equipped with retransmission facilities which can be integrated into the division artillery FM or AM nets if desired.

Any means by which communications of armored artillery can be strengthened is an aid to the combat commander as well as to the overall fire support plan. The above is presented as one means by which flexibility, and reinforced communications in armored artillery can be achieved. I have dwelled entirely on radio communication realizing that wire is also an important artillery communication, but in three years with an armored division in Europe and a year with the 4th Armored Artillery, I have learned to value and respect the great need for radio communication and the effect that lack of it can have. Our friends the tankers cannot be expected to stop and repair the wire which their steel tracked vehicles are bound to cut despite all precautions.

CAPTAIN JAMES M. LANDRUM, JR.

The writer of the following article served in Europe during World War II with the 171st Field Artillery Battalion, 45th Infantry Division. From 1949 until 1954 he served with the 78th Armored Field Artillery Battalion, 2d Armored Division both at Fort Hood and in Europe. Since July 1954 he has been S4 of the Armored Division Artillery, 4th Armored Division.

Supply and Maintenance of Armored Artillery

To fully understand the supply and maintenance difficulties of armored artillery units, you must first realize that armored artillery differs from other artillery in its mobility, and tactics. In the employment of armored artillery each individual has to become accustomed to prompt execution, change of plans, and to perform unusual as well as normal missions; therefore, it is essential that greater flexibility exist in the organizations or armored artillery units.

Self propelled armored artillery has several advantages over other artillery, but there are also disadvantages such as fuel consumption, maintenance and camouflage.

The mission of armored artillery may vary with the existing situation but the characteristics of mobility, firepower and communications will not change; therefore supply and maintenance will continually be a major problem in the armored artillery.

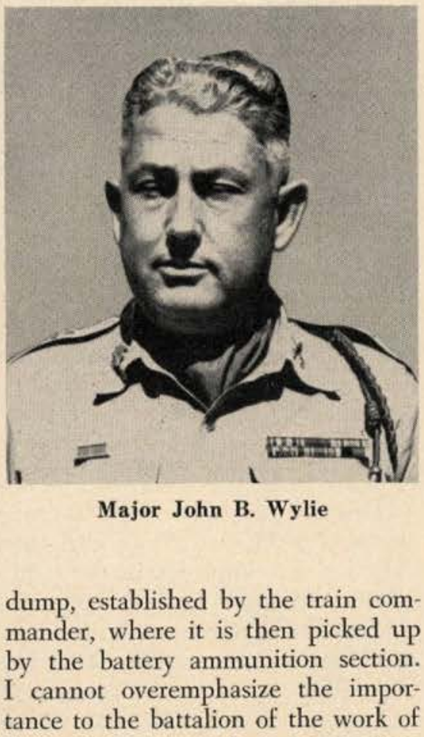
Mobility is the state or quality of being mobile and is dependent upon supply and maintenance. One is equally as important as the other, and in some cases they are dependent upon each other. As for maintaining mobility in the armored artillery, the vehicle driver is of prime importance. The performing of first echelon maintenance, which in some cases is about all the maintenance that the vehicle will receive for extended periods of time, is his responsibility and he should be well trained in performance of his maintenance and capable of performing some second echelon maintenance. Drivers should be the best available, as you are dependent on them in many ways. It is desirable that they also be tracked vehicle mechanics.

Second echelon maintenance personnel should be capable of performing some third and fourth echelon maintenance. The battalion motor officer should, through his known usage factors and usage experience, set up and maintain a basic load of spare parts for all his batteries. He should continually screen stock record cards to see that they are not carrying dead stock.

Through experience, I have found that some vehicle parts have a higher mortality rate than others. These are the ones that should be given special consideration when it comes to stocking for an extended maneuver, field exercise, or for combat. I have always felt that the battalion motor officer should be allowed to make the decision as to what parts he needs to stock. This decision must be based on the unit's ability to transport, to perform the required maintenance and to properly store and maintain the parts. Of course this action would have to be closely supervised by higher headquarters to prevent unnecessary hoarding of parts.

The ultimate mission of the artillery is to support the other combat arms by delivery of fire on the enemy; therefore firepower enters the picture. To effectively deliver fire you have to get there first, after arriving at the place of action you must have communications. So we can safely say that to fulfill our mission of delivery of fire on the enemy we have to be mobile and have communications. Of course there is one other factor, class V supplies.

The normal basic load for a 105 howitzer battalion equipped with M7B2 artillery pieces is 214 rounds per weapon; this will vary depending upon the type of weapon and the commanders concerned. Of this amount only 70 rounds can be carried on the carriage M7B2, the remaining amount has to be carried in the battery ammunition sections and the service battery train vehicles. In a fast moving situation the train is continually hauling to a forward dump, established by the train commander, where it is then picked up by the battery ammunition section. I cannot overemphasize the importance to the battalion of the work of the train commander, ammunition sergeant, and drivers. Most of their work is done at night and usually without too much supervision on the part of the battalion. Train them to operate independently, and by all means assure yourself the train commander is one of the best map readers or air photo readers in the battalion.



Major John B. Wylie

Equally important but generally taken for granted is the battalion supply section which is responsible for the drawing and issuing of all classes of property with the exception of class V. The personnel in this section should be trained to operate independently and with little supervision. They should be picked for their capability and initiative. Generally speaking the supply lines are longer and more hazardous in armored artillery than in other types of artillery. The drivers especially should be well trained in map reading. Keep all of your supply personnel up to date on the situation, showing them, if known, at least two proposed moves ahead. There are several ways that a service battery can move so that battalion units and organic drivers can always find you, move into your headquarters battery area when headquarters battery moves out; or continually move along the main supply route, which is not always possible.

Quite frequently one of the batteries will be attached to a task force, and the S4 will be called upon to attach a section of his ammunition trucks, a ration truck, and a gasoline truck to this battery. The battalion motor officer should check and see if the battery maintenance section has the parts needed and the Communications Officer should check the signal section for signal parts. Upon departing the battery should be self sustaining for at least three or four days. The S4 should advise the battery commander as to how and when the battery will be re-supplied with class I, III and V.

In conclusion, I would like to say that a service battery, to fulfill its mission of supply and maintenance, must be well organized with capable and responsible personnel in charge of each section. Every individual should be trained to act individually and to make decisions, in some cases without orders. High type personnel are just as important in a service battery as anywhere else, as they are links in the life line of the unit. A chain is no stronger than the weakest link. Therefore keeping in mind the mission of the Armored Artillery we can assume that most anyone can be an artilleryman, but it takes a good man to be an armored artilleryman.

MAJOR JOHN B. WYLIE

by CAPTAIN THOMAS G. WOODS

"MOS 1560"

U. S. Army

THE service journals have contained few articles on Armored Infantry, as such. Mention has been made of tank-infantry teams and combined arms teams. However, as brought out by the author of an article on armored infantry in ARMOR not too long ago a newly assigned officer to an armored infantry battalion approaches his duties with many doubts in mind. FM 7-17 is adequate in presenting a general picture of the tactics and techniques of armored infantry, but in my opinion it falls short of the information contained in the tank platoon leaders' "bible," FM 17-32.

This presentation is a contribution which I hope will help newly assigned armored-infantrymen assume their training missions with greater optimism and, secondarily, stimulate some constructive arguments among "older" armored-infantrymen. All the ideas are not original with the author. Some of them have come from my associations with officers both junior and senior to me.

SOP's

This is a period of many weekly tasks to be performed by our units. The tempo and work load are sometimes disturbing. The use of unit SOP's will make life easier for the commander and the men. I do not think that the wise use of SOP can be overemphasized. After an SOP is established it should be tested. Otherwise it will become additional, unused "eyewash." A good SOP includes time factors for accomplishing various jobs. For example: A platoon leader should know that it requires his platoon 35 minutes to load all equipment and leave the motor park for a field exercise; a company commander should know that it requires a minimum of 1½ hours of daily maintenance to keep the vehicles, weapons and OVM in "rust-free" and alert condition; and, after an 8 hour field exercise, his troops need hours to clean their weapons, gas their vehicles, and perform after-operation maintenance.

Such SOP's not only develop a business-like attitude in an outfit, but keep the officers aware of how much work their men are performing in a week. Naturally, estimates must be revised as the strength of units changes. Included in any SOP should be a proved stowage plan for vehicles. Adherence to a plan (here is one of the indications of the caliber of an officer) will make life more bearable for the men and the tactical mission easier for the leader to accomplish. I will talk more about SOP's throughout this article.

Training

I am not going to discuss the training of an armored-infantryman from the day he enters the Army until he becomes a proficient member of a tank, armored-infantry team. A study

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of FM 7-10, FM 7-17, and Department of the Army Training Circulars will furnish most of this knowledge. Rather, I will highlight some of the phases of training which I consider need more attention by armored-infantry unit commanders.

The Squad

We ride too much during maneuvers and become lazy. The squad leader must keep his men proficient in dismounting and mounting the personnel carrier rapidly at all hours of the day and night. This is one of the greatest responsibilities he has toward his platoon leader. Once on the ground, the squad must be able to react rapidly to a surprise situation. It must be able to assume a standard combat formation for attack, execute a hasty defense, remove a mine field or attach a tow cable to aid in getting its vehicle out of a mudhole. Speed and use of previously practiced SOP's (in these examples, battle-drills) will meet most situations with a winning blow.

Starting with the youngest private in the squad, every man should be able to operate all the communications equipment, including the vehicle intercom in the unit. By this remark, I do not include the complex duplex and retransmission equipment that our new radios have. Radio is the nervous system of the armored-infantry and a platoon leader must feel confident to turn his radio over to any man in the platoon while he attends to other jobs. A leader in armored infantry who fails to indoctrinate his men with good radio procedure and with the will to monitor the air at all times is headed for serious trouble, both during an exercise and after the company commander catches up with him!

The Rifle Platoon

Here we have, in my opinion, the basic armored-infantry unit. This is the outfit which gives the battalion its reputation, both in garrison and in the field. The armored-infantry platoon leader has been the unsung hero, having been overshadowed by the more dashing "tanker." He has suffered from a lack of printed doctrine, and inattention from the service schools and his senior commanders.

On the platoon level, mounted formations are extremely important. The ones contained in FM 7-17 are good, but the repertoire of the platoon should not be limited to these. Practice in variations of the standard formations, using radio and flag signals, is valuable training. In general, the remarks I made on the dismounted actions of the squad pertain to the platoon.

There are nine items (not necessarily in order of importance) which I consider platoons most deficient in among the three armored infantry companies which I have commanded and among the companies commanded by my colleagues. They are:

1. POL resupply, night and day, from 5-gallon cans.

Lack of a platoon SOP. (Who's going to stay awake to do the job? Don't say, the driver; he's probably driven 80 miles today!)

2. Camouflage of vehicles and emplacements.

Practice in use of squad and platoon drills can overcome this deficiency.

3. Technique of fire with the A6 machine gun, particularly laying the gun for *accurate* night firing.

If this sounds like a rather simple problem, test your units in how proficient they are. You might be embarrassed!

4. Lack of a workable sleeping plan.

We are not being soft when we see that our men get a share of the available sleeping time. But it cannot be left to chance.

5. Laying and maintaining wire lines.

This is very important at night and in defense.

6. Calling for and adjusting artillery and mortar fire.

Remember that I am discussing things in the everyday life of the armored-infantryman. Walk up to almost any squad leader, point out an area to his front and ask him to call for artillery on it. If he fails the test, chances are that his failure is due to one or more of the following:

a. He does not know whom to call due to failure of the company commander to establish an SOP.

b. He does not know the call signs. This is the platoon leader's fault and also the squad leader's for not being aggressive enough to ask the platoon leader.

c. He does not know how to operate the equipment. This is also the platoon leader's fault.

d. The equipment fails and there is no alternate means of communication. The company commander failed by not having established an SOP for calling fires.

e. He does not know how to describe where he wants the

George Skadding, *Life*

The Armored Infantry Platoon is considered the basic Armored Infantry unit.

U. S. Army

The Mortar Platoon gives the Armored Infantry commander fire support.

fire. This is simply lack of knowledge of the methods used or inability to read a map.

I have used considerable space to discuss calling for indirect fire but I think that it warrants it. One of the primary missions of the armored-infantry in the mobile defense where we spend a lot of our time, is to call for long range fires on the enemy as soon as he is seen. We will fail in one of our basic tasks if we leave the problem of obtaining indirect fire to halfway measures.

7. Attack from march-column and hasty attacks from intermediate objectives.

   Frequent practice of battle-drill will make units proficient in these tactics.

8. Operation of OP's and arrangement of strongpoints in the mobile defense.

   Perhaps these should be discussed separately but in some respects a strongpoint manned by armored-infantry is in simple terms a heavily protected OP. Failure to specify sector responsibility, lack of a communications plan, and lack of reporting information are the most common deficiencies.

9. Persistent maintenance.

   It is not necessary to look busy all the time while in position. The platoon leader should budget time in order to give each man a chance to maintain his weapon and himself and give the driver assistance with the maintenance of the carrier and the radio.

The Mortar Platoon

The 81mm mortar platoon, consisting of 3 mortars, furnishes the company commander with excellent fire support. However, with its present communications equipment (three AN/VRC-7's, four PRC-6's, and one AN/GRC-4, radio in the platoon leader's jeep, plus wire) the full potentialities of this platoon are not developed. The platoon should be equipped with at least one additional AN/GRC-4 radio in one of the personnel carriers. Such an arrangement will insure almost foolproof accomplishment of the following:

1. Allow the platoon leader (or other FO) to stay well forward in the attack and get his fire request back to the guns.

2. Permit a rifle platoon leader or the company commander to get needed fires when the mortar platoon leader is out of radio contact or becomes a casualty.

We need better training of our mortar platoons. This means company size exercises using HE ammunition. I believe that most company commanders would be quite surprised to learn the state of training in their mortar platoons if they were put to the test with live ammunition. From a standpoint of both maintenance and combat readiness, I am of the opinion that the mortar platoon should be kept at nearly full strength, even at the expense of the rifle platoons. (No; I have never been a mortar platoon leader!) The company commander must indoctrinate his mortar platoon leader in the habit of making a fire plan immediately upon arriving on a new position. The plan should include an objective, an assembly area and a strongpoint. A good mortar platoon leader will carry a supply of carbon paper in his jeep and will prepare copies of the fire plan for the company commander, executive officer, and all platoon leaders. This practice is a good substitute for the ideal arrangement of the company commander and the mortar platoon leader making up the fire plan together as they walk over the terrain, or observe it through binoculars.

One last remark on this unit—we need to give more attention to our night firing procedure and the maintenance of the equipment provided for this mission.

The Company

Let's begin first with a remark on the caliber of men in the company headquarters (this includes the maintenance, mess and supply sections). From the company clerk to the first sergeant they should be the best group of soldiers in the company. They must be the type who will do their routine tasks without a great deal of supervision and who will take vigorous actions in the absence of orders, to cope with emergencies.

With regard to the physical arrangement of the CP in the field, this depends on the particular commander's preferences and experience. Generally speaking, the company executive officer controls all elements of the CP, assisted by the first sergeant, who stays well forward, not at the battalion CP. I strongly suggest the use of platoon runners in a defensive situation. The company communications chief controls these runners and works them in shifts so that duty personnel are alert to monitor the radio at all times, meet visitors and keep the area policed. Activity around the CP should be quiet and businesslike.

American men like machinery. In

the armored infantry we have lots of it! This gives the armored infantry company commander an edge over his contemporaries in other branches of the Service in producing training that is interesting and *fun*. Training should be vigorous, but cease when the training goal for the particular day has been reached. Training should be well planned, but not necessarily put on paper.

Map reading should be practiced by all leaders at every opportunity. I believe that we spend too much time studying map reading in classrooms. The effective way to teach it is by use of jeep exercises. The company commander plots a series of march objectives over unfamiliar terrain and gives each member of the party the mission of leading the group to a successive objective. Movement is made over roads, cross-country or by a combination of the two. Movements are made at both normal armored vehicle convoy speed and at 25 mph. When the desired degree of proficiency is obtained by this method, the culminating exercise is to alternate platoon sergeants and squad leaders in commanding the lead vehicle in a company size road march over an unfamiliar route.

Sand table exercises are also an excellent training medium for the leaders. The instructor should be well rehearsed and prepared to offer sound solutions to each situation presented.

The company commander should train his company in deploying on a broad front, control being exercised by use of radio and flags. Included in such field work should be a series of mounted and dismounted hasty attacks, executed by means of flag signals.

Most units fall short in tactical proficiency when halted on roads during marches. Each company should have an SOP for actions at halts. The minimum requirements for this SOP should be the use of road guards at the front and rear of the column, plan for local security and plan for POL re-supply.

Each unit from the company down to the squad should practice battle drills for the laying and removal of mine fields. Such battle drills (or SOP's) should include the use of covering smoke, when applicable, and covering fires. I recommend practice in removal of mine fields which vary in size from small groups of mines on trails to six belt mine fields on a fairly broad front.

U. S. Army

The Armored Personnel Carrier makes an excellent Company Command Post.

Night operations are important, but difficult to perfect. In my opinion, every overnight problem should include one of the following exercises:

1. Change of defensive sector in the sustained defense, during hours of darkness.

2. Occupation of a strongpoint in the mobile defense, during hours of darkness.

For effective training each of these two exercises should include "first light" adjustment of positions and feeding a hot breakfast "on position."

We need more practice in accurate marching to attack positions, moving in company column or over multiple routes in platoon columns, and reaching the attack position in time to launch the attack, but not so soon as to endanger the unit by remaining an excessive time in the attack position.

Many commanders make the mistake of having the entire company engage in identical training. Experience has taught me that adherence to such a policy results in uneconomical use of time, ineffective training, and boredom to a large segment of the company.

The company commander must work toward the goal of teaching his men the "need-to-know" subjects. As an example, *Figure 1* is a typical training schedule for one day's work which demonstrates this principle.

This may appear to be an ambitious program but such scheduling does work and at the end of the day the company commander feels that most of the men have learned something and that they have not been bored learning it.

As one of my final remarks on training, I want to mention the problem of moving through woods with some degree of security, while mounted. A suggested method is to dismount the lead platoon to screen both flanks of the route. The vehicles of this platoon pull over to the side of the road, if possible, and fall in at the end of the column. After the leading platoon moves dismounted for a thousand yards the next platoon takes its turn at dismounting and the first platoon which dismounted remounts its vehicles as they appear.

Another training device which I regard highly is that of turning the company over to the executive officer while the company commander acts as battalion commander and gives the company a series of tactical situations to perform. This allows the company commander to get a somewhat impartial view of his unit and to see where additional training is needed. The battalion commander and selected staff officers should also perform

SPECIALIST MAINTENANCE COURSES

Class	Duration	Number of Classes Annually
Armor Motor Officer	17 weeks	2
Armor Track Vehicle Maintenance	10 weeks	20
Armor Automotive Supervision (Motor Sergeant)	8 weeks	6

Figure 1.

HAS your group commander been avoiding you lately? Has your supporting ordnance been making unkind remarks on your T.I.'s? If they have, it's quite possible that it's because you have S.A.M.*

If you do *have* S.A.M., then *you* know it only too well—and even your best friends won't tell you. Don't despair, or be downcast—there is hope!

Let's look into the cause of your troubles. There has always been too much mystery and "sheema-sheema" connected with motor maintenance—and all unnecessarily.

What do you need to keep your motor equipment in tiptop fighting trim? Well, obviously a whole raft of things, but they all can be boiled down to five essentials which more or less academically come out as follows:

> *1.* Trained personnel available to do the job. (This includes drivers and crews, as well as maintenance personnel.)
>
> 2. Time to perform scheduled services. (One of the weakest links in the chain—but more about this later.)
>
> 3. Adequate shops and tools. (An artisan is no better than his tools. Did you ever see a professional carpenter with a dull saw?)
>
> 4. Parts to effect required replacements. (Another big beef!)
>
> 5. Command Supervision. (You know—a commander is responsible for every thing. The job gets done only when he sees that it does!)

Let's look into this business of trained personnel. I guess we all know in a vague sort of way that this is a fundamental requirement. We know we need trained people—but do we know how to go about getting them? Some commanders appear to handicap themselves by training a high proportion of maintenance personnel by "on-the-job training." Commanders take this course of action, in most cases, because they feel that they cannot afford to spare the personnel for the duration of The Armored School specialist courses. They should consider this point very carefully—or perhaps look at it in another way. "Can they afford not to spare them?" Actually, any unit has plenty to do in training tank crews in preventive maintenance services without taking on any unnecessary training load. This is not to disparage on-the-job training but this procedure does require that skilled personnel take "time-off-the-job" to assist the neophytes. The problem, of course, is not peculiar to the maintenance field. It is just that the "two-year non-professional soldier" presents a major problem in budgeting time. This is a complex riddle which only the commander can resolve, since personnel situations vary so widely in various units. However, The Armored School does offer specialist courses for unit maintenance personnel. (*See Figure 1.*) Note particularly the Motor Officer course. Some armored officers have been unaware of the existence of this program of instruction.

The ratio of Motor Officers to Track Vehicle Mechanics in an Armored Division is roughly 1 to 16.5. During the academic year 1953-1954, the ratio of the same specialists trained by The Armored School was approximately one to eighty. It is readily apparent that some units must be limping along with less than their share of properly trained motor officers.

We previously touched on crew and driver training in the units. It is certainly no news to you that this is where most of the trouble starts. Crews have plenty to do, before, during, at halts and after operation. None of it is difficult but it is exacting work and it does require attention to detail. Some say it is the kind of simple things, like gassing and lubrication that we perform for our own cars. Some of us do and some of us don't—so let's skip this. The details of what is to be done by the crews and when—are contained in the TM on the particular vehicle. For a check list, you are supposed to use the Form DD 110 (Trip Ticket) suitably modified. Actually it is not suitable at all for tracked vehicles. Fort Hood has a detailed mimeographed form for these services that is excellent. (*See Figure 2.*) Incidentally you picked up the recent change (back) that fixes "B" Services (bi-weekly on wheeled vehicles) as a crew responsibility, didn't you? That is in Change 2 to TM 9-2810.

While we are on the subject of scheduled services, we might as well take up the second essential—that of time available to perform these services. We have just barely mentioned the fact that this is sometimes an "Achilles Heel." Yes—everybody's pressed for time—but if you do not provide time to perform maintenance, "you just ain't gonna have none"—and that's for sure.

This thing has just crept up on most of us. *Maintenance Takes Time.* Put that up in large letters in the office of your S3. Many units want combat ready vehicles but insist on having all of them running and in the field all of the time. It just can't be done. Consider the following: Tank "B" Services, required weekly, take a *well-trained crew* a minimum of four hours per vehicle. Is this time provided for in your training pro-

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*Stone Age Maintenance.

COLONEL NED T. NORRIS, a 1936 graduate of USMA, served in Europe during World War II, as Executive Officer of a Combat Command in the 10th Armored Division. After several Stateside assignments he served a tour of Military Attache duty in Lebanon. He returned to the States and attended the Armed Forces Staff College prior to his present assignment as the Director of the Automotive Department, The Armored School.

WORK SHEET FOR A (daily) and B (weekly) SERVICES FOR TRACK VEHICLES (air cooled engines)

LEGEND FOR MARKING:

- √—**Satisfactory**
- X—**Adjustment required**
- XX—**Repair or replacement**
- O—**Accomplished**

Vehicle Model

Vehicle Registration Nr.

Organization

Station

Service A ☐ B ☐

Mileage

Tank Commander

Date

Follow sequence and specifications contained in vehicular technical manual.	BEFORE O'PN	DURING O'PN OR AT HALT	AFTER O'PN	WEEKLY	CHECK
1. FUEL & OIL a. FUEL—Check level in tanks and note any indication of leaks. Add fuel if necessary. b. OIL—Check oil levels in main engine and auxiliary engine.	X		X	X	
2. INSTRUMENTS—With engine running, observe all instruments for proper operation, according to specifications contained in vehicular manual.	X	X		X	
3. ENGINE OPERATION—Operate engine and note any unusual characteristics or noises such as lack of power, sluggish acceleration, backfiring, misfiring, stalling, overheating and excessive exhaust smoke. Check to see that engine responds properly to all controls.	X	X		X	
4. HORN, HEATER, AND VENTILATOR—Check operation of each.	X			X	
5. GLASS—Clean and inspect all glass. Check glass in vision devices for looseness or damage.	X			X	
6. LAMPS. (lights)—Test all lights for operation. Inspect and clean all lenses and reflectors.	X			X	
7. FIRE EXTINGUISHERS—Check portable extinguisher for condition and fixed extinguisher for open valves, damaged lines, and broken seals.	X			X	
8. DECONTAMINATOR—When installed on vehicle, check condition.	X			X	
9. BATTERIES—Remove battery covers for each of the four 12-volt batteries, clean and add water as necessary. Check terminals to see that they are securely fastened and coated with light grease to prevent corrosion. The electrolyte level should be $^3/_8$-inch above the plates. Whenever water has been added, operate the auxiliary generator to recharge the batteries and mix the solution.				X	
10. AUXILIARY ENGINE—Start and check operation.				X	
11. AIR CLEANERS—Check oil level and examine for excessive dirt. If necessary, clean and service main and auxiliary engine air cleaners, according to lubrication order.			X	X	
12. OIL FILTERS—Remove, clean and inspect filter according to instructions contained in lubrication order.				X	
13. FUEL FILTERS—Remove the fuel tank-filler filters and remove sediment. If vehicle is equipped with a fuel line filter, open sediment bowl drain plug and drain off accumulated dirt and water. If equipped with a primer line, an auxiliary engine, and a heater fuel filter, remove sediment bowls and clean all parts with dry cleaning solvent.				X	
14. ELECTRICAL WIRING—Inspect all accessible wiring and conduits for wear or abrasion, loose coupling nuts, and loose or missing clamps or brackets.			X	X	
15. ENGINE CONTROLS—Check operation of hand throttles.	X			X	
16. TRACKS & TIRES a. Inspect tracks, road wheels, idler wheels and drive sprockets for damage. b. Check track adjustment according to specifications in vehicular technical manual, and adjust if necessary. c. Tighten all wedge nuts securely.	X	X	X	X	
17. SUSPENSION a. Inspect suspension arms, bumper springs and shock absorbers for condition and mounting. b. Check operation of shock absorbers by hand feel after operation. c. Check for broken torsion bars by pry-bar method. d. Tighten suspension mounting bolts and cap screws.	X	X	X	X	

Figure 2.

TRAINING SCHEDULE

Time	Who	Subject	Instructor
0800-0900	All	Dismounted Drill and Physical Training	Platoon Leader
0900-1200	Co Hq	On-Job Training	Section Chiefs
0900-1200	Mortar Plat	Squad and Platoon Exercises	Mortar Platoon Leader
0900-1200	Leaders (1/2)	Sand Table Exercises Platoon Tactics	First Platoon Leader
0900-1200	All (—)	Mechanical Training—All Individual Weapons	Company Committee Chiefs
1300-1600	Co Hq	On-Job Training	Section Chiefs
1300-1600	Leaders (1/2)	Map reading integrated with tactical ride	Company Commander
1300-1600	All (—)	Maintenance of Vehicles and OVM (less "peeps")	Company Executive Officer
1600-1700	All	Police Call and Retreat Formation	Company Commander

Figure 1.

this service for the company commander occasionally and likewise the company commander should do this for the benefit of the platoon leaders. This will result in fewer anxieties developing about the time that annual training tests roll around.

Equipment and Organization

The present T/O & E for the armored-infantry is sound. I have only a few changes to suggest. Our rifle squads should be equipped with two AR's, and should retain the A6 machine gun for defense. The AN/VRC-7 radio which the rifle and mortar platoon squads have is not reliable. It should be replaced or improved.

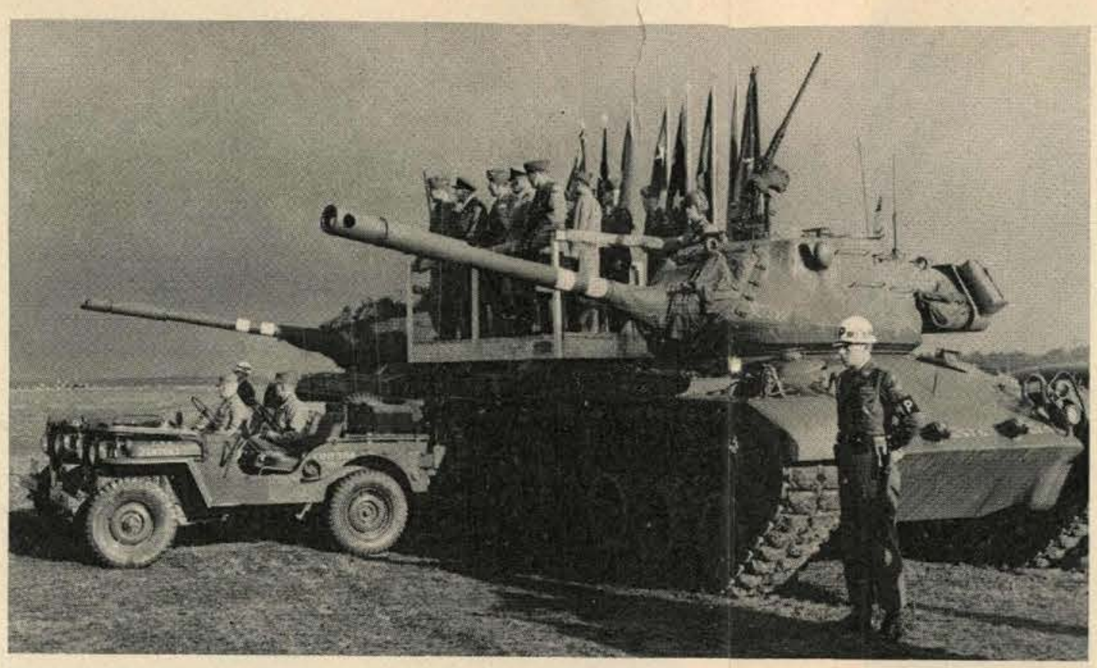
I feel that there is a real need for a reconnaissance section in the armored-infantry company. The reconnaissance elements of the battalion are not large enough to perform the missions which they usually receive. For example: Mark the route, post guides, secure the flanks, secure and break down the bivouac area. My recommended unit is a section composed of two jeeps, each equipped with an AN/VRC-8 radio, a pedestal mounted light machine gun, and a driver and three men per vehicle. A unit of this type would perform the following missions: augment the battalion reconnaissance platoon, as required; reconnoiter the route when the company is marching alone (remember going through those German towns?); act as flank security for the company; act as a mounted patrol between strongpoints in the mobile defense; and perform limited reconnaissance to the front when the company is in mobile or sustained defense.

Summary

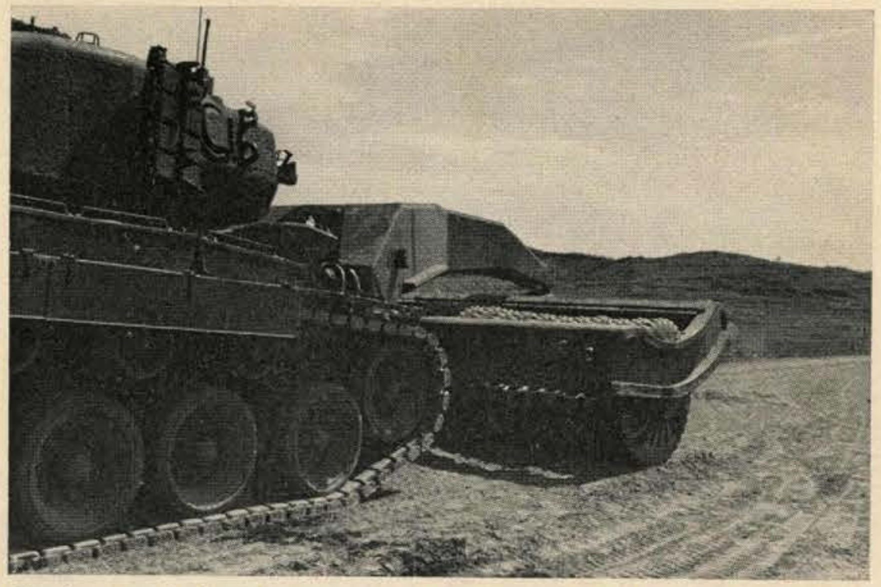
The armored-infantryman has inherited the traditions of soldierly bearing and skill of his predecessors and is expected to be the best soldier in the armored division. With the proper leadership, he is. However, his leaders must remember that to reach these standards, he must master all the skills and physical endurance of the foot infantry and in addition maintain a great deal more equipment, all in an eight hour day more or less. The repeated practice of battle drills and the use of SOP's will help him to accomplish all these jobs in a reasonable time and with a minimum of effort.

The Armored Infantry has not reached its full potentialities, both equipment-wise and tactically. This is evident in the light of recent developments in atomic weapons and the promise of new river crossing techniques offered by the M59 armored personnel carrier. An opportunity to command an armored infantry unit presents an officer or NCO with a stimulating and challenging assignment.

VERSATILE ARMOR

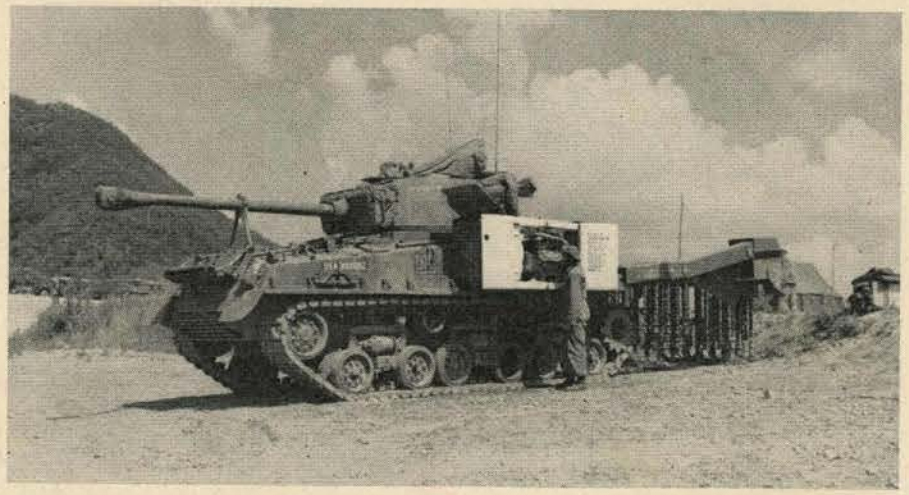


The versatile tank has been used for many purposes, but we think the ingenious idea of the 2d Armored Division mounting their reviewing stand on M47's proves the mobile mind knows no bounds.



Clearing a path through enemy mine fields for our Tank-Infantry teams is an easy task when Armor is equipped to use the mine detonation roller.

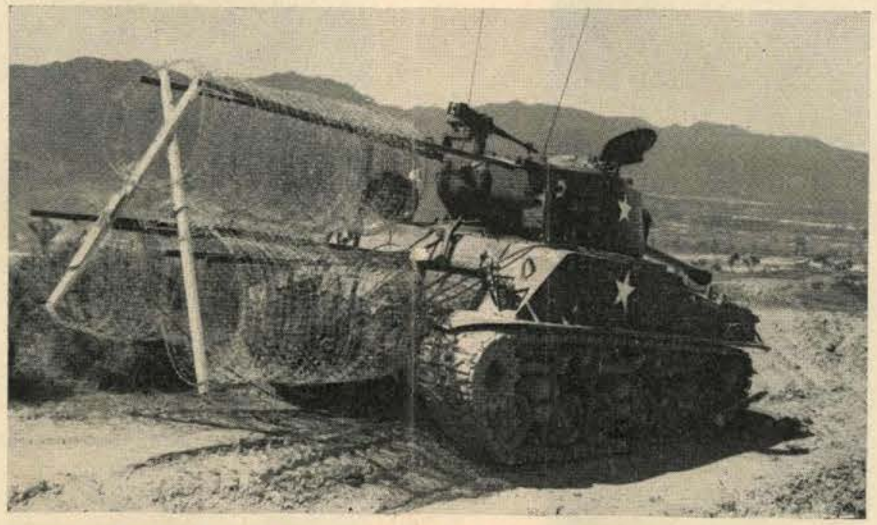
All Photos U. S. Army



The use of flail tanks is another method of clearing a path through an enemy mine field.

One way in which letters and packages from home reach our combat forces is by using a tank as "Special Delivery" vehicle.

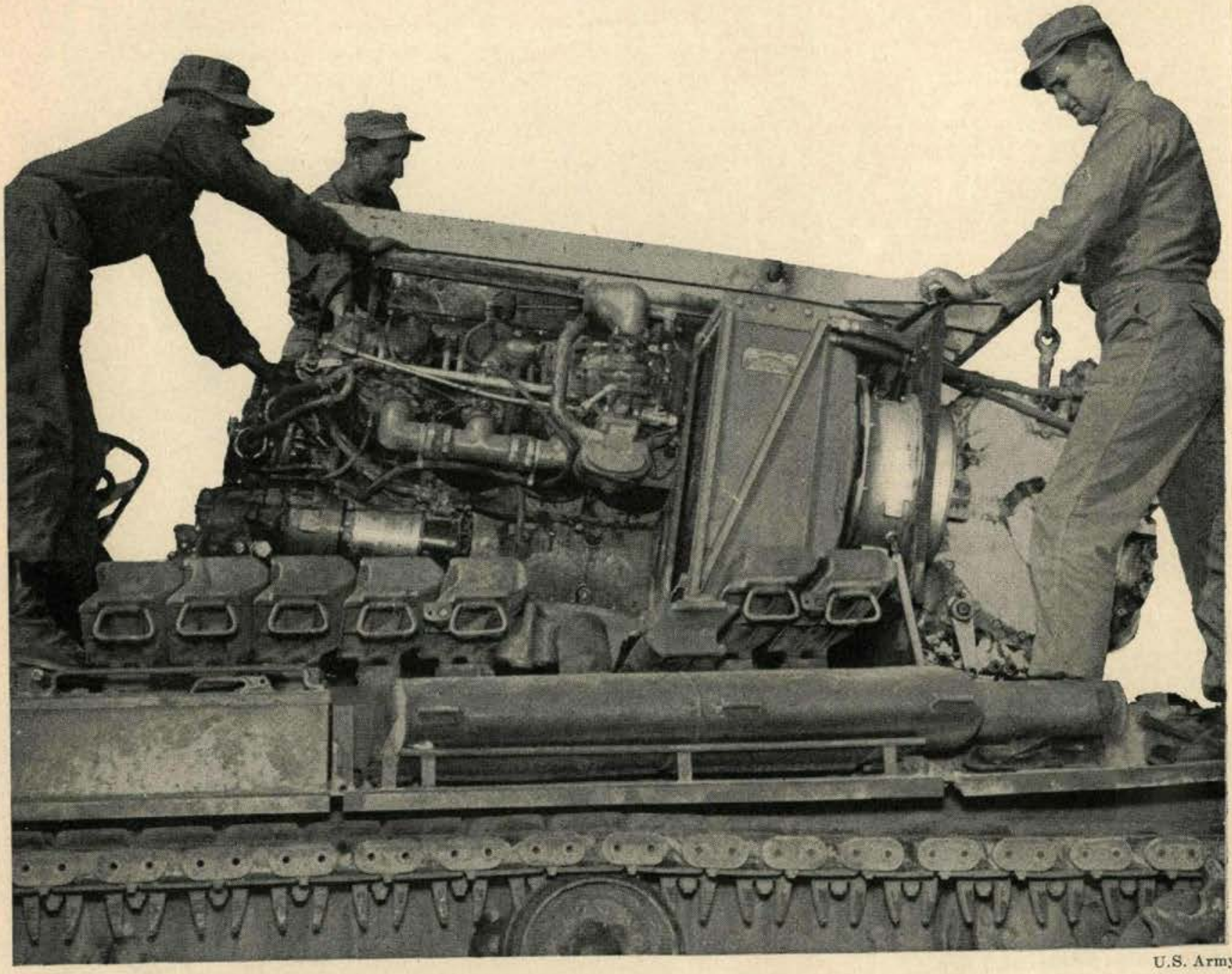
The Psychological-Warfare Section uses loudspeakers on tanks as another means of defeating an enemy.



Fitted with a triple belt wire concertina, this tank demonstrates the new method of laying barbed wire can be done with speed and protection while under fire.

by COLONEL NED T. NORRIS

MAINTENANCE IS AN UGLY STEPCHILD



U.S. Army

	BEFORE O'PN	DURING O'PN OR AT HALT	AFTER O'PN	WEEKLY	CHECK
18. STEERING & BRAKES a. Check that manual control levers move freely. b. If equipped with manual control, check oil level. c. Test parking brake to determine if it holds brakes in the applied position.		X		X	
19. TRANSMISSION—Check oil level with engine running at idle speed.	X		X	X	
20. LEAKS, GENERAL—Inspect all lines, connections, plugs and gaskets for leaks and correct or report if found.	X	X	X	X	
21. FENDERS, SAND SHIELDS & HORN & LAMP GUARDS—Check for condition and mounting.	X	X	X	X	
22. TOWING CONNECTIONS AND GUN-TRAVELING LOCK a. Check that tow shackles, gun-traveling lock, and pintle hook are secure and in good condition and that locking devices are operational. b. Examine tow cable for broken strands and that it is securely mounted. c. Inspect pintle for security and operation.	X			X	
23. HULL a. Inspect condition of entire hull. b. Check alinement, mounting and operation of escape hatches. NOTE: Do not fully release escape hatches. c. Tighten exposed drain plugs and covers and check hull drain valves for free operation and secure closing.				X	
24. VISION DEVICES a. Inspect periscopes, viewing prisms and spare prisms for condition, cleanliness, and security in holders. b. Check periscope holders for free operation and secure locking.		X	X	X	
25. TURRET AND GUNS a. Check all mounted guns for condition, and cleanliness and that all have light coating of oil. b. Disengage elevating and traveling lock and test operation of both hand and hydraulic traversing controls by traversing turret through 360 degrees in each direction. Elevate gun through its entire range. Report any binding or excessive play. c. Check operation of azimuth indicator, sighting devices, fire control equipment, and manual and electrical gun-firing controls.			X	X	
26. LUBRICATE—Lubricate all points according to lubrication order.			X	X	
27. CLEAN VEHICLE a. Remove all refuse from interior of vehicle and wash exterior. Remove all dirt, mud and excess grease. b. Wipe oil or fuel drippings from driving compartment, turret, and engine compartment. Check that engine compartment doors are free from obstructions. c. If compressed air is available, blow out all dust from engine cylinders and oil coolers.			X	X	
28. TOOLS & EQUIPMENT a. Check all vehicle tools, equipment and spare parts with appropriate ORD 7 Supply catalog in On-Vehicle-Matériel section, for completeness, serviceability, and proper stowage and mounting. b. Clean tools and equipment. Cutting edges should be sharp and bright surfaces treated to prevent glare.			X	X	
29. PUBLICATIONS—Vehicle is equipped with technical manual, lubrication order.			X	X	

REMARKS:

I certify that I have performed the maintenance required.

Signature.

Figure 2.

MINIMUM TIME

Service	Tracked Vehicles	Wheeled Vehicles
Before Operation	30 min (crew)	15 min (driver)
At-Halt Service	15 min (crew)	5 min (driver)
After Operation	1 hour (crew)	20 min (driver)
B—Service Weekly-Tanks Bi-Weekly-Wheel	4 hours (crew) (plus 2 if combat loaded or primary weapon fired)	1 hour (driver)
C—Service 250 Mi or Monthly-Tanks 1000 Mi—Wheel	1 Day (1 Mech & 2 Crew)	1 Day (1 Mech & Driver)
D—Service 750 Mi or Quarterly-Tanks 6000 Mi or Semi-Annual-Wheel	1-2 Days (1 Mech & 2 Crew)	1-2 Days (1Mech & Driver)

Figure 3.

gram? Or is the allotted time as shown in *Figure 3*?

Look especially at the time required for "after operation" services in *Figure* 3 on tanks. Some units are missing the boat here!

We have all observed inadequate preventive maintenance services by crews in the field. This is a fairly widespread weakness. With this in mind, the automotive instruction at The Armored School for basic officers has been reoriented to emphasize crew services. The basic Armor officer is given detailed and practical instruction in these services somewhat at the expense of a broader view of automotive maintenance and some of the detailed aspects of the unit motor officer's job. We feel that well-grounded platoon leaders, concentrating on crew services, can give a material assist to improving the whole system of preventive maintenance in units. Hence, your newly joined and shiny armored second lieutenant should be expected to supervise crew maintenance, but should not be expected to hold down a company or battalion motor officer slot. Put an older hand—or school trained man in that position and you will be happier.

While it's strictly none of my business as an instructor at The Armored School—a look around most unit motor parks reveals a striking similarity—namely, an "other side of the tracks appearance"—numerous small, ramshackle shops and sheds, if any (World War II vintage), capable of holding several vehicles at the most. It is apparent that we are trying to maintain deluxe type equipment in "country garage" facilities. The unit commander can do little about this part of his fixed plant but there are newly created agencies which can perhaps take the matter in hand.

We mentioned tools as an essential along with shops as the third necessity. Some organizations have all that they are authorized but find that they require additional types and increased allocations. Sometimes the types issued are unsatisfactory for the task they are expected to do.

If this is the case, the motor personnel should not nurse their frustrations secretly as is so often the case, and damn the technical services under their breath. Bring it out in the open! Put your requirements in a letter through channels. The tech services are just as anxious to help as we are to get on with the job. But they have to know what the units want and need, and they will not know if you do not tell them.

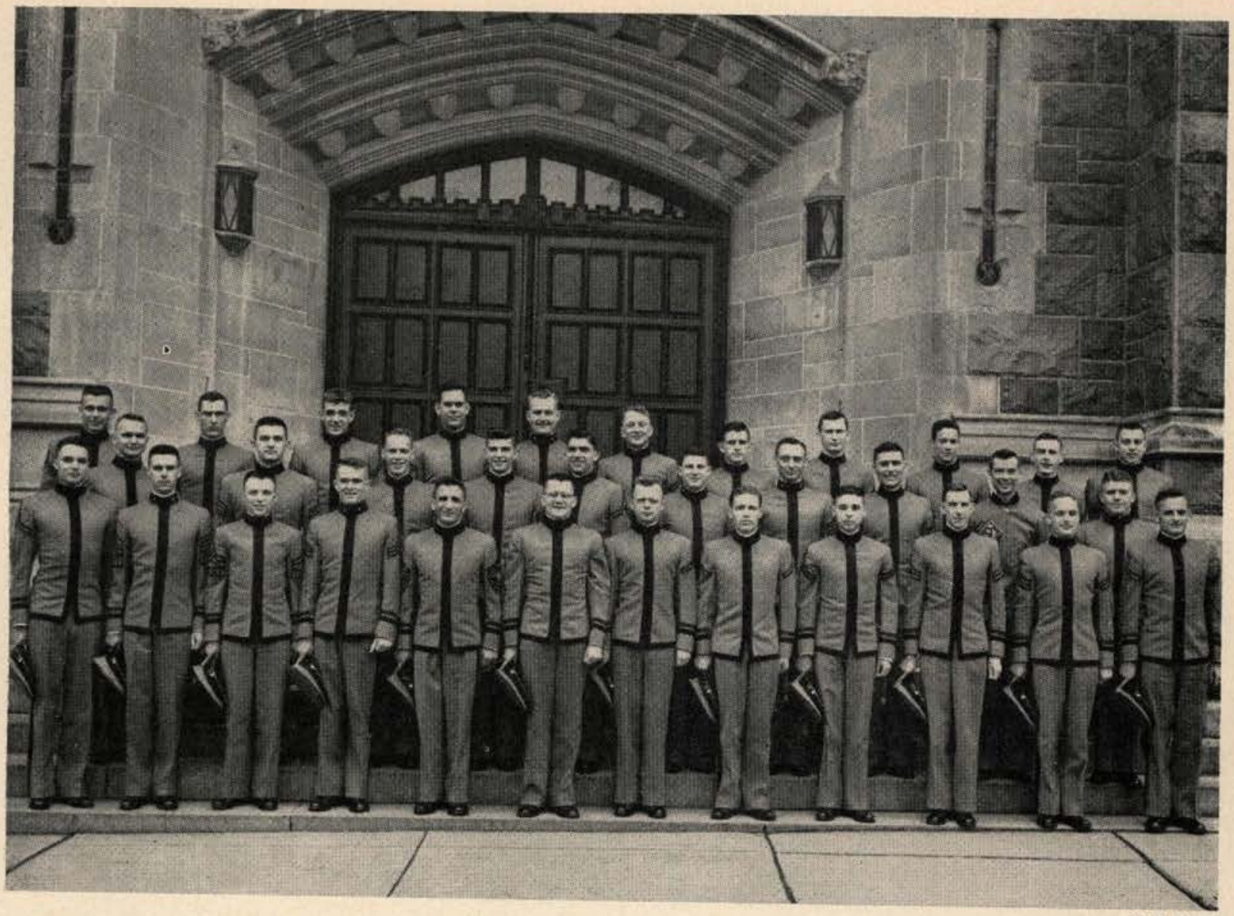
Parts supply is a sore point with many. The Office of the Deputy Chief of Staff for Logistics is taking this in hand along with many other problems related to the overall maintenance problem areas. Positive measures are being taken and this picture should get much brighter. Within armored units we can only see that the emphasis is on preventive maintenance services, alleviating the requirements for repairs and for replacement parts.

In Korea, the static nature of operations permitted a displacement forward of ordnance support and a merging of second and third echelon personnel. This permitted rapid repair but it also resulted in neglect of preventive maintenance. It is obvious that a mobile situation in the future will require more normal procedures.

Command supervision? Only you, the commander, can provide that. Personal supervision through the various types of inspections will do much to keep equipment in the best possible condition, and may keep the commander from being blinded by "spit and polish." TM 9-2810 contains some excellent suggestions for the conduct of both command inspections and spot-checks. A command inspection preceded sufficiently in advance by a training memorandum accomplishes three things:

1. Improvement of maintenance facilities and equipment prior to the inspection.
2. Permits time to coordinate and properly organize the inspection.
3. Avoids harassing the troops.

Maintenance is, and has been, an ugly stepchild, but she need not be.



U.S. Army

FRONT ROW, left to right—W. J. Eddins, D. D. Gilpatrick, L. L. Crandall, W. B. Streett, P. N. Fikaris, C. R. Gersitz, R. D. Shimunek, C. D. Jellison, W. C. Lucas, L. R. Coyle, W. H. Edwards, L. E. Erminger. SECOND ROW, left to right—R. L. Shaffer, L. T. Tebodo, J. L. Schick, R. D. Johnson, J. P. Bergen, H. A. Garn, L. D. Olvey, N. G. Blahuta, D. C. Dugan, R. L. Soper. THIRD ROW, left to right—M. W. Wells, A. R. Macdonald, J. F. Passafiume, F. G. Johnson, G. A. Dulk, G. R. Negaard, N. L. Dorward, S. R. Sydenham, A. D. Raymond, N. W. Fleming, H. W. Meetz.

Class of 1955 Armor Graduates

On June 7th, thirty-three members of the graduating class at West Point joined the ranks of the mobile arm. Having completed their four year course at the Academy they now begin their commissioned service in Armor.

Upon completion of graduation leave they will report to Fort Knox for the Basic Armor Officers' Course and, upon completion of this course, will be assigned to troop duty with armor units in the United States or overseas.

During their four year course at the Military Academy all cadets receive instruction in Armor, as well as Infantry and Artillery. The Armor Section at West Point, which is responsible for and conducts the Armor training, is equipped with the latest tanks and equipment so that the cadets can familiarize themselves with the newest equipment available to units in the field. The amount of instruction given is limited due to the large number of other requirements in the curriculum, but is sufficient to give each graduate a good foundation in Armor doctrine and principles.

United States Military Academy

The Armor Section at the Military Academy is a part of the Combat Arms Detachment, 1802d Special Regiment, and is commanded by Major K. R. Lamison. Assisting Major Lamison are Captain James A. Day and fifty qualified noncommissioned officers and men.

Many of the cadets who chose Armor have been junior members of the Armor Association and it has been announced that the Association has awarded them honorary memberships for one year. We are sure that all in Armor are happy to welcome this group of officers to the Association of the mobile arm and extend best wishes for long and successful careers.

THE ARMORED DIVISION

IN

THE MOBILE DEFENSE

by LIEUTENANT COLONEL CROSBY P. MILLER

THE purpose of this article is to present a general picture of the mobile defense at armored division level and to provoke and focus thought on that subject.

The mobile defense is defined as a type of defense in which maneuver is used with detailed co-ordination of fire and maximum utilization of terrain to seize the initiative from the enemy. The armored division is well suited to the conduct of such a defense in that mobile defense is basically an offensive type defense which permits armor to capitalize upon its mobility and firepower.

Although the armored division is designed primarily for offensive missions, at times conditions will require its employment in a defensive role. For example, the armored division—having seized a deep corps objective—must defend that objective until other elements of the corps can relieve it, or, again in exploitation, it has been confronted by an enemy force of sufficient strength and mobility to prevent accomplishment of the division mission and, consequently, must defend itself. Normally, under such conditions, the armored division will employ the mobile defense.

The mobile defense is composed of a forward defensive position and a strong, highly mobile striking force. The forward defensive position is made up of a series of strong points of varying size—depending upon the mission, the terrain, the enemy situation, and the troops available to the commander. The mission of the forward defensive position is not to stop the enemy "at all costs," but to stop the enemy if that is within its capabilities; to delay his advance; to canalize the enemy into areas favorable for counterattack; and to provide the commander information of the enemy and to support the counterattack to the maximum extent. The mission of the striking force is to strike the enemy in counterattack at such time and place as to destroy it. The key to the mobile defense is the striking force.

Conduct

Generally, the conduct of the mobile defense will be such that the forward defensive position will do everything within its capabilities to stop an attack. Failing in this, however, it will roll with the enemy attack, trading space for time and providing the commander of the defense an opportunity to determine the enemy strength and direction of attack, and to determine the proper time and place to deliver that enemy a crippling blow with the striking force.

Thus, it is obvious that the conduct of the mobile defense requires considerable space forward—or before the area to be defended. Space is required to allow limited maneuver by elements of the forward defensive position and, more important, to permit maneuver of the striking force to strike the enemy on his flank or rear in the counterattack.

A successful mobile defense by armor hinges upon the action of the striking force. A successful counterattack by the striking force hinges upon surprise, speed, boldness, and the massing of all available fire support. Selection of the proper time and place for the counterattack depends upon a continuous flow of information of the enemy to the commander from his reconnaissance elements and the forward defensive position.

It may be stated in general terms that the concept of the mobile defense, regardless of the level of command, envisions a strong mobile striking force, containing the bulk of the available tank strength, employed in decisive counterattacks which are based upon information of the enemy and the action of the forward defensive position. A great part of the success of the mobile defense depends upon accurate and timely intelligence. For example, the counterattack may be carried forward of the forward defensive position to strike an enemy in his attack position or assembly area provided accurate information of the enemy strength and reinforcements is available. Of neces-

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LIEUTENANT COLONEL CROSBY P. MILLER, Armor, graduated from Virginia Military Institute in 1940. During World War II he served in Europe with the 4th Armored Division. Subsequent to the War he served in Korea and on Civilian Component duty. Completing the course at the Command and General Staff College in 1953, he has served there as an instructor since that time.

This interesting and informative article first appeared in the June issue of the Military Review. *It is with the kind permission of the editor of that publication and the author that it is reprinted in ARMOR as a matter of vital interest to our readers. We invite your comments on such reprints.*

sity, counterattack plans must be detailed and must be prepared in order of priority to meet every possible contingency.

Although it is highly desirable to maintain the strongest possible reserve at the highest possible level, it is evident that certain conditions may exist which will limit the mass employment of a large striking force. Two examples of such conditions are an inadequate road net for rapid movement of a large striking force, or an enemy air superiority capable of inflicting serious losses on a large striking force during its movement to the counterattack. Such conditions may force the decentralization of control of the striking force to subordinate commands.

As has been stated, a successful mobile defense hinges upon the action of the striking force—a tank-heavy force committed in mass. It must be assumed that an enemy force may be of sufficient strength to permit him to strike the forward defensive position at two or more points. It is clear that a splitting of the striking force to hit each attacking "prong" defeats the purpose of a large striking force by reducing the shock effect attained. The solution to this problem depends upon accurate and timely information of the enemy. The commander of the mobile defense should determine the direction of the enemy's *main* effort and attack it with his entire striking force, containing or delaying the other enemy attacks with elements from portions of the forward defensive position not under attack. After destruction or disruption of the main enemy force, the striking force may be employed further against the remaining enemy "prongs."

The success of the mobile defense is predicated upon careful, detailed planning and rapid execution of a decision, employing boldness, speed, surprise, and the massing of fires of all available supporting weapons. The hours of darkness will reduce:

1. The accuracy and timeliness of enemy information.
2. The speed of execution of the counterattack.
3. The control of the counterattack.
4. The effectiveness of fires of supporting weapons.

Conversely, the cover of darkness reduces the capability of the enemy to interfere with the movements of the reserve and increases the possibility of surprise being attained by the counterattack force. However, the reduction of control of the counterattack force and of the efficient employment of supporting fires becomes a major factor in the successful conduct of the mobile defense.

Illumination

One way of overcoming or reducing the problems imposed by darkness is illumination of the area occupied by the enemy. This may be accomplished by the use of three existing light sources—the Corps Field Artillery Searchlight Battery, air-delivered flares, and illuminating shells. The 60-inch searchlight of the field artillery searchlight battery can provide artificial moonlight or direct lighting. Flares can be delivered by cargo type aircraft of the Tactical Air Force and Army aircraft. Illuminating shells can be accurately placed by artillery, mortars, and, if available, naval guns. Also, there is under study and test a tank-mounted searchlight. This light is mounted on the tank gun tube and provides direct lighting of targets, permitting maximum effective employment of the tank weapons. The "fighting" light of the tank-mounted searchlight may prove extremely worthwhile when used in support of the forward defensive position and with the striking force in the counterattack. The Chinese Communist Forces in Korea launched many comparatively large-scale night attacks in order to lessen the effectiveness of the United Nations tremendous firepower. In such situations the tank-mounted searchlight can materially assist in the defense.

Communist Forces Tactics

According to Major John L. Fellows, Jr., in his article "Tank Searchlights" which appeared in the January-February, 1954 issue of *Armor:*

Probably the most successful action occurred near the end of the war in May 1953. Here, the 1st Marine Tank Battalion, supporting a Turkish Brigade by fire and illumination in a defensive action, helped to kill over 700 enemy in several attacks from dusk to dawn.

Use of the available lighting sources cannot be haphazard; it must be carefully planned and co-ordinated with the defense plans. It is at night that the fundamentals of the mobile defense are the most difficult to apply. However, this discussion of mobile defense at night is not to be construed to mean that the defense will fail without artificial illumination Obviously, moonlit nights or winter nights with snow on the ground will provide sufficient illumination to the defenders for maneuver and efficient massing of fires. Artificial light means—properly incorporated in the fire support plan—can materially increase the efficiency of the defense.

Studies of tactics employed by the Soviet Army in World War II bring out two points worthy of mention in connection with mobile defense. First, there is the matter of infiltration; second, the employment of armor in breakthrough operations.

The Soviet soldier—both by environment and training—is adept at night infiltration, and takes maximum advantage of the terrain. A Department of the Army Pamphlet, *Russian Combat Methods in World War II,* states:

Because of the drawn out German defense front, it was no particular art to steal between the widely separated strong points, but it was always a surprise when, despite all watchfulness during the night, the Germans found the next morning that strong Russian units fully equipped with weapons and ammunition had assembled and dug in far behind the front.

In a mobile defense such infiltration methods must be combated by a combination of countermeasures in the forward defensive position itself and counterattacks by elements of the striking force. In the forward defensive position maximum use of mines, trip flares, patrols, and area illumination must be carefully planned to stop or restrict night infiltration at its source. If infiltration is successful, then counterattacks must be launched against the infiltrated grouping as soon as it is located. All or part of the division reconnaissance battalion is an ideal force for this role rather than to parcel out elements of the major reserve. Unless quickly eliminated, infiltrated groups within the area to be defended can well become thorns in the defender's side by interfering with communications, supply, maneuver of the reserve, and by providing a base of operations and information for the enemy. The subject of counterinfiltration can bear a great deal of further thought and development.

In 1942-43, the Soviet Army conducted a number of operations employing mobile formations of corps-size tank and mechanized forces in breakthrough missions. These forces moved in a zone having an average width of about 3½ miles. The tendency today is undoubtedly toward a somewhat wider zone for greater dispersal and maneuver space. Enemy planning for the attack will take into account an increased air effort against his main force, the tactical use of mass destruction weapons, and the use of mobile reserves to counterattack his flanks. His countermeasures for air attack will be dispersion and strong mobile antiaircraft units; for mass destruction weapons they will be dispersion coupled with rapid concentration and execution of attacks; for counterattacks by mobile reserves they will be the disposition of tank and antitank elements on the flanks and in depth. The Soviet Army employs heavy tanks—depending on the situation—in the second echelon, which support the medium tanks in the first echelon—thus providing antitank weapons in depth for flank security concurrent with long-range frontal support for the medium tank. This means that in fighting an enemy employing this tactic, the commander of a mobile defense action—employing a powerful tank-heavy striking force against the flanks or rear of an attacking enemy force—must keep fully cognizant of the fact that his counterattack undoubtedly will be countered by, and must destroy, the heaviest antitank elements of that enemy force before the disruption or destruction of the attack can be completed.

The subject of Communist tactics brings up another thought—the "human sea" concept. This concept, demonstrated by the Communist Chinese Forces in Korea, has no major effect upon the basic fundamentals of the mobile defense. However, does this concept affect the organization and conduct of the defense? For example, it is obvious that the organization of the defense will be such that the forward defensive position will be stronger in the direction of the major enemy threat. In the face of a "sea" of humans or matériel, must the forward defensive position revert to self-sustaining strong points designed to hold the position at all costs until relieved by a counterattack, or shall the forward defensive position plan to "roll with the punch"? Again, for example, at night, must the forward defensive position be pulled back into a tight perimeter and attack at daylight to regain its original positions? Of course situations will vary and the handling of the defense must be fitted to the situation. The above questions are offered to provoke thought.

Summary

The mobile defense is a flexible defense requiring a highly mobile force, a commander capable of rapid decisions, and a force capable of rapid execution of these decisions. The mobile defense permits to a great degree exploitation of the characteristics of armor—mobility, flexibility, armor protected firepower, and shock action. Terrain, weather, and the enemy capabilities all have a profound effect upon the organization and conduct of the mobile defense.

Defense planning must include the careful co-ordination of all available supporting weapons. It must make provisions for countering infiltration and co-ordinated attacks by the enemy under cover of darkness or reduced visibility.

It must be kept in mind that the key to the successful mobile defense is a striking force which is highly mobile and capable of striking a powerful blow.

Author's Note: Revisions in manuals may bring about changes in terminology. Whether the forward defensive position is indicated by another term such as 'strongpoint system' or the striking force by any other term, is unimportant. This article is aimed at the principles of organization and conduct of the mobile defense.

ARMOR ASSOCIATION NOTES

Executive Council Meeting

On the third of June an Executive Council Meeting was held in Washington.

It's Hood in '56

Prior to the meeting, your president, General Williston B. Palmer, and the Secretary had visited Fort Hood, Texas to discuss with the Council members who are stationed there, the feasibility of holding the next annual meeting at that installation. After a thorough investigation it was decided that it was possible to meet there in 1956. Hence the President called an Executive Council Meeting to discuss this point and bring up other business of importance to the Association. All Council members who were unable to attend were asked to vote on this vital question. After much discussion it was unanimously agreed that it would be practical to visit Fort Hood next year. With two Armored Divisions stationed at Hood plus the fact that there is a National Guard Division in the vicinity this should indeed be an outsanding occasion. The time of the meeting will be decided at a Fall Council meeting; however, it is believed that it probably will be held in the Spring rather than in January as in the past. The Commanding General, Fort Hood, General Harrold, was appointed by the President to be chairman of the program committee which will recommend the firm dates and present a tentative schedule in the Fall for consideration.

Financial Status

During a discussion of the financial status of the Association by the Secretary it was pointed out that the total income for the first five months of 1955 was slightly behind that received for the corresponding period during the preceding year. This loss in revenue is largely due to loss in bulk subscription and actually individual memberships are higher than a year ago. With the increased interest in Armor in both the National Guard and the regular establishment we believe that this is a logical trend. However, it behooves each and every member to encourage others to join, especially more Armor branch officers. Likewise, it is felt that all Armored unit commanders should be subscribing for the magazine so that it is available in the dayrooms.

Many members have written in recommending that membership cards be issued to members as they join. This matter has been given considerable thought by the Secretary and it is hoped that it can be instituted sometime this Fall. It is believed that this will encourage membership.

The Carlisle Barracks Memorial Plaque

In January at the Annual Meeting an initial council meeting was held after the election of officers for this year. At this time a letter was read from Colonel James H. Polk, who has been a Council member for several years. It was recommended that the U. S. Armor Association sponsor the erection of a plaque at the Army War College in commemoration of the establishing of the first School of Cavalry Practice at Carlisle in 1838, thus making that post the first home of the mobile arm. The Council approved the proposal but directed the Secretary to contact the units who still retain the honors, tradition and colors of these former units and invite them to participate in the contribution of funds toward this worthy cause. There were seven units involved. They are:

1st Tank Battalion, 1st Armored Division
100th Tank Battalion, 1st Armored Division
2d Armored Cavalry Regiment
3d Armored Cavalry Regiment
4th Armored Cavalry Reconnaissance Battalion
5th Cavalry Regiment, 1st Cavalry Division
6th Armored Cavalry Regiment

To date six units have responded with generous contributions. The plaque has been made and it is going to be dedicated in September. Anyone interested in obtaining the firm date for the dedication please contact the Secretary of the Armor Association and he will notify those interested as soon as the date is firm. Council members will automatically be informed. Coverage of this event, to include pictures, will be made in the September-October issue of ARMOR.

Awards

The Secretary discussed the awards made to the ROTC honorary graduates and the honorary one-year memberships going to those West Point cadets choosing Armor as their basic branch. He also requested and received permission to purchase fifty sets of Armor branch insignia to be sent to the Chief of the Armor Committee, The Infantry School. The Chief of the Section, Lieutenant Colonel Duff Green, Jr., presented to the OCS graduates who were commissioned in Armor, a set of insignia, letters of welcome to the branch from the Secretary of the Armor Association and personalized brochures with pictures and letters of welcome to the branch from the Deputy Assistant Commandant of The Armored School. There are sufficient insignia on hand to continue this practice throughout the year. Colonel Green stated, in a letter of appreciation to the President of the Armor Association, that the institution of this presentation was well received by the newly commissioned officers and will do much to cement the branch relations with these newly commissioned officers.

The 179th Anniversary of Armor

For the past two years congratulatory messages to all members of the Armor branch have been sent out under the signature of the Chief of Staff of the Army. Within these pages we have editorialized, bringing members up to date on the year's activities within the branch, and have apprised all commanders of the advantages in utilizing this date to stimulate interest and morale in the units. It was agreed by the Council that the 12th of December 1955, which is our 179th Anniversary, should not go unnoticed. The local Washington chapter will spearhead a fitting celebration in the Washington area and it is hoped that Armored Commanders around the world will see fit to do likewise. Notice of this date can be taken by holding open houses, dances, dinners, sporting events, etc. It is believed that this will go far to promote branch *esprit* and assist in building morale in Armored units.

Army Extension Courses and Your Military Education

by CAPTAIN RICHARD D. TRUE

ALL the great American military leaders have been outstanding students of military science. Their studies were not confined to resident instruction at civilian and service schools, but included much individual effort. The many service schools of the Armed Forces of the United States are making available an opportunity for individual study which each person can utilize in accordance with his own needs and at the rate his available time and facilities will permit. The army extension courses of these service schools now present a vast curriculum of military subjects from the most simple and basic to the most complex and technical. They are available to all military personnel, from general officers to privates, and in all components of the military establishment.

These extension courses fill many needs. Consider, for example, a Reservist or National Guardsman who has not yet had opportunity to attend a resident course of instruction at a service school. He may have had a branch change since his last period of active duty. He may obtain, through extension courses, equivalent instruction to that he would get at the service school. Or consider an officer or enlisted man on active duty, who receives a new job assignment. It may have been years since he attended a service school and he may have been away from his basic branch for a long time. He may receive the latest information by study through extension courses, and bring himself up to date on the changes.

Something that is not always realized is that an extension course curriculum can be made up to suit any individual need. Of course, there are standard "series" of extension courses and such special series as a particular branch school may find necessary. These are based on levels of instruction (i.e., platoon, company, etc.) and each series is a well-rounded course of instruction, paralleling a resident course at the service school. But, for many specialists, it is not necessary to enroll for an entire series in order to obtain the instruction they need. Within any branch it is possible to select just those courses applicable toward gaining proficiency in any MOS. An outstanding example of the possibilities along this line occurred recently at The Armored School. A National Guard officer, whose company had just been converted to Armor, contacted the Extension Course Division, Nonresident Instruction Department, and with their help, laid out courses of study for every key specialist and NCO in his company. This company commander will find very little difficulty in converting his men to tankers, for each is studying Armor extension courses in addition to attending armory drills.

As another example, a senior Regular Army officer, who has been in a series of staff assignments and who had graduated from his branch school advanced course many years before, was to receive a troop assignment to an Armor unit. He enrolled in an Armor extension course series as a means of refreshing his knowledge of the equipment, organizations and tactics of his branch.

Preparation methods vary between the different service schools. Some schools maintain writing staffs who prepare the subcourses while other installations utilize their regular resident instructors to write the courses which cover the topics they teach. The Armored School uses the latter method. Each subcourse which covers a single topic is complete, and is sent out with all manuals, maps and training aids necessary.

Each service school publishes a Prospectus, which is an announcement of the extension courses offered by that school. In addition, the Department of the Army publishes DA Pamphlet 20-100 which is an announcement of all extension courses offered by all Army service schools. These publications contain a listing of the subcourses within their series and a brief scope and description of each. Other publications governing extension courses are AR 350-300, SR 350-300-1 and 2. Certain National Guard regulations govern the use of extension courses in connection with promotions and retirement credits while Army Regulations govern the use of extension courses for accrual of retirement credits by Reservists.

Application for extension courses is made through channels on form DA 145. All academic exchange between the service school and the student is direct. All reports of progress and certifications are made through channels. Anyone interested in extension courses as a means of furthering his military education should contact his branch school direct for further information.

All military leaders of all components have the obligation to maintain their professional proficiency. They cannot always rely on the locally available training opportunities or tours at service schools to maintain their qualifications. Extension courses will bring them, in their own homes, a training facility which will help give them the background to say "can do" if the need arises.

CAPTAIN RICHARD D. TRUE served in Europe during World War II with a combat engineer group and later with a tank battalion. Since the War he has attended The Armored School and recently completed a tour of duty with 14th Armored Cavalry Regiment in Germany. He is presently an Instructor in the Non-resident Instruction Department, The Armored School.

SPECIAL SERIES

The Armored Cavalry Regiment[1]

Subcourse	
20–5	The Armored Cavalry Regiment
20–8	Combat Training of the Individual Soldier and Patrolling—II
30–8	Employment of the Tank Company, Armored Cavalry Reconnaissance Battalion
30–10	Reconnaissance and Security
30–18	Employment of the Reconnaissance Company
40–22	Employment of the Reconnaissance Battalion, Armored Cavalry Regiment
40–23	Communication in the Armored Cavalry Regiment
40–24	Employment of the Howitzer Company, Reconnaissance Battalion, the Armored Cavalry Regiment
50–14	Employment of the Armored Cavalry Regiment in Security Missions
50–15	Employment of the Armored Cavalry Regiment in Reconnaissance and Counterreconnaissance Missions
50–16	Employment of the Armored Cavalry Regiment in Offensive and Defensive Missions
50–17	Employment of the Armored Cavalry Regiment in Retrograde Movements

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[1] The Armored Cavalry Regiment Series is designed for officers and warrant officers with armored cavalry regiments, or reconnaissance battalions.

Supporting Elements of the Armored Division[2]

Subcourse	
20–13	Signal Communications in the Infantry, Airborne, and Armored Divisions
30–9	Armored Medical Battalion, Armored Division
30–15	Ordnance Maintenance Battalion, Armored Division
30–21	Military Police Company, Armored Division
30–22	Quartermaster Battalion, Armored Division
40–8	Supply, Evacuation, and Trains (Armored Units)
40–14	Field Artillery in Support of Armored Units
40–17	Armored Engineer Battalion

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[2] The Supporting Elements of the Armored Division Series is designed for those officers who wish to know more of the activities of the elements which keep the tanks and the infantry of the armored division in the line.

Career Management Division

The Military Intelligence Officer

JAPS bomb Pearl Harbor! Germans attack in Ardennes! Chinese Reds cross Yalu! How many casualties might have been saved had information presaging these events been available? What will be the next similar event? What price would you attach to timely and accurate information concerning the imminency of a nuclear attack against the United States? Admittedly, whether or not the desired information was, is, or will be available is unknown; however, within your opinion on these questions lies the answer to another debatable subject—the importance of intelligence.

An indication that someone is interested in collecting and evaluating detailed information pertaining to potential enemies is reflected in the headlines of your newspaper. Specific individuals and methods used are not mentioned when the press reveals that high ranking foreign officials have defected, that spy rings have been broken, that workers in remote localities are discontent, that uranium deposits are being developed in Timbuktu or that enemy troop strength in the vicinity of Shangri-La is increasing. Behind every one of these stories is another untold story concerning the work of intelligence officers. In essence, deception, security of operational methods and avoidance of publicity are vital and unchangeable characteristics of the intelligence officer and the intelligence mission. Whereas the American public gets occasional information concerning life in Armor, Artillery and Infantry, few civilians and not many individuals in the military establishment are aware of the effort expended by the military in the production of intelligence.

The scope and size of the intelligence effort expended through the years has varied greatly in accordance with the imminence of war; however, few if any individuals have ever gone on record recommending that production of intelligence be abandoned. At the present, technical innovations and ease of intercontinental transportation and communications have greatly stimulated the overall size and scope of our intelligence effort. Whereas the immediate pre-World War II era saw few officers performing intelligence duties, the present era sees many officers assigned to the positive intelligence field as photo interpreters, interrogators, censors, order of battle specialists, language and area specialists, interpreters and general intelligence officers. Other officers are assigned to the Counter Intelligence field while still more officers are in fields such as psychological warfare, special forces, field operations intelligence, Army Security Agency, Central Intelligence, attache and strategic intelligence.

What does an intelligence officer look like? Is he a recluse, an eccentric or an otherwise strange individual of the type developed by Conan Doyle or Mickey Spillane? Despite the characterizations of mystery writers, unusual behavior and possession of eccentricities, if known, suffice to disqualify an officer for intelligence duty in any capacity. The freak is a misfit everywhere and the only officer wanted for intelligence duty is the normal, well-qualified officer wanted by every other arm and service. Pertinent regulations such as SR 605-150-30, "Intelligence Specialization"; AR 600-148, "Assignment to the Counter Intelligence Corps"; AR 614-46, "Assignment to Field Operations Intelligence Duties"; SR 600-147-1, "Assignment in Army Attache System"; and SR 350-380-1, "Foreign Area Specialist Program," outline the basic prerequisites for selection and assignment to some of the fields. Assignment to the remaining fields is covered by similar regulations and directives. In general, it is desired that individuals selected be of normal appearance, be free of possible compromising affiliations, be receptive to language and area background training and be imbued with the desire to perform intelligence duty. In all cases, potential for high manner of performance and unblemished character and integrity are mandatory.

Selection for assignment to the various programs is made by Career Management Division, The Adjutant General's Office, at Department of the Army level; and appropriate assignments within the programs for those selected are made and monitored by Career Management Division. Through closely supervised assignments, most of our intelligence officers eat, live and sleep with intelligence after being selected for such duty. The pattern for intelligence specialists selected from the career reserve officers requires consecutive assignment to high level intelligence agencies. Regular Army officers selected for the Army Security Agency specialization program remain assigned to Army Security Agency for the remainder of their military careers. Area specialists, regardless of component, are committed to a seven year training and utilization tour with intelligence agencies. Army Security and Military Intelligence-USAR career reservists on active duty who comprise the largest single source of intelligence officers are assigned within Army Security Agency and various intelligence fields, respectively, throughout their military careers. For the purpose of maintaining branch qualifications, Regular Army intelligence specialists are rotated regularly for the duration of their careers between tours with their basic branches and selected intelligence agencies. With a complete career in intelligence before them, all of the aforementioned intelligence officers are afforded every opportunity for training, development and advancement afforded by any arm or service. Within the remaining intelligence fields, officers, regardless of component, normally serve one three year tour and revert to assignment jurisdiction of their basic branch unless longer assignment is desired in the interest of the service.

One means by which the importance of the individual intelligence officer and intelligence may be set forth, is by giving consideration to certain events within the realm of possibility. Will headlines ever chronicle the devastation of San Francisco, Chicago or Memphis? Will enemy elements ever penetrate the ranks of our military forces? What is the potential of the enemy in any area of importance to our cause? It is doubtful that even a crystal ball could provide the complete answer to any one of these questions; however, trained and effective intelligence officers can and do produce information upon which opinions, decisions and plans can be based. With the arrival of the jet-propelled plane, the intercontinental ballistic missile and nuclear weapons, the importance attached to the production of accurate and timely information requires far more from every commissioned officer than mere token acknowledgment of our intelligence effort. First, it must be realized that highly trained intelligence officers and intelligence agencies are available for utilization in the specialties required of them and for production of intelligence. Next, it must be realized that individuals of high potential are essential to the continued operation and effectiveness of the never-ending quest for information. Finally, despite restrictions which preclude widespread recognition or acknowledgment of achievement, every officer must realize that the production of intelligence is a field of endeavor as vital to our cause as is the endeavor of any other single arm or service. When these requirements are met by the rank and file in the military establishment, the only weak links in our overall intelligence program will have been strengthened considerably.

THE NEW SECRETARY OF THE ARMY

The Honorable Wilber M. Brucker, who is presently the General Counsel for the Department of Defense, has been nominated as the new Secretary of the Army to succeed the Honorable Robert T. Stevens.

Born in Saginaw, Michigan in 1894, he graduated from the University of Michigan in 1916 with an LL.B. degree. Mr. Brucker served as Assistant Prosecuting Attorney for Saginaw County, and later as Prosecuting Attorney. In 1927 he became Assistant Attorney General of Michigan and Attorney General from 1928 to 1931. From 1931 to 1933 he served as the Governor of the State of Michigan. Since 1933 he has been a practicing attorney with a Detroit law firm and has served as Director of a prominent Savings and Loan Association in Detroit. Since April 1954 he has been serving in his present capacity as General Counsel.

He served with the Michigan National Guard in 1916-1917. During World War I, he served as a commissioned officer with the 166th Infantry Regiment, 42d Infantry Division in France, and participated in the Chateau Thierry, St. Mihiel and Meuse-Argonne engagements. He was awarded the Silver Star for gallantry in action.

NEWS NOTES

Florida-Georgia Guard Division Converted to Armored Unit

The 48th Infantry Division, a Georgia and Florida National Guard organization, will be converted to an armored division, the National Guard Bureau announced recently.

The conversion of the 48th will be the fourth such changeover in a year and brings to six the number of armored divisions now in the National Guard.

The Adjutants General of Florida and Georgia have concurred in the conversion of the 48th and have advised the National Guard that the conversion will be carried out within the year.

Major General Joseph B. Fraser of Hinesville, Georgia, Commanding General of the 48th Infantry Division, will continue as Commander of the new 48th Armored Division.

Division headquarters will be in Macon, Georgia.

Army Field Exercises

The tentative schedule of training exercises to be conducted during Fiscal Year 1956 was announced recently by the Department of the Army.

The eight announced exercises, involving approximately 135,000 troops, will include Arctic, amphibious and mountain operations.

Exercise SAGE BRUSH, a major joint Army-Air Force exercise, is tentatively scheduled to take place during November-December, 1955, in the Camp Polk, Louisiana, area. Approximately 110,000 Army and 30,500 Air Force personnel will participate in SAGE BRUSH. Army units taking part will be the Headquarters, Fourth Army; III and XVIII Corps; 1st and 4th Armored Divisions; 82nd Airborne Division; 3rd Infantry Division; 11th Armored Cavalry Regiment and selected artillery, engineer and logistical support troops.

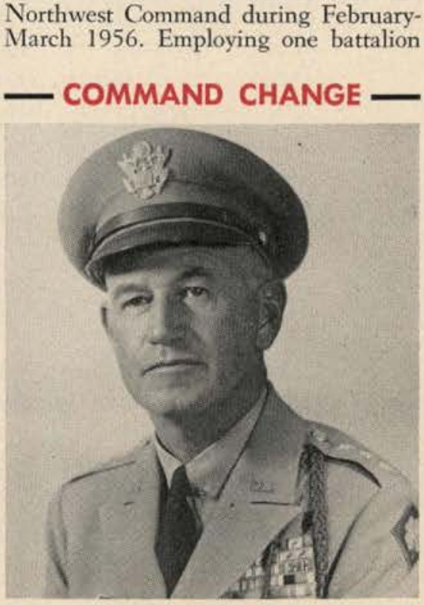
The purpose of SAGE BRUSH is to provide training, under battlefield conditions, for both friendly and Aggressor forces in the fields of atomic, chemical, bacteriological, radiological and electronic warfare. It will also determine the capability of Army and Air Force units operating jointly against numerically superior ground and air units.

An exercise in mountain and cold weather operations, LODE STAR, will be held at Camp Hale, Colorado. This has already commenced and will continue through next spring. Involving approximately 5,000 personnel over the extended period, it will provide training in mountain operations at high altitudes. Set up in three phases, the nine-month exercise will include aerial and tramway supply and evacuation, tactical air support, mountaineering, and testing of equipment. Participating will be elements of the 77th Special Forces Group, two battalion combat teams and supporting elements.

Exercise COMMAND POST will be conducted at Army areas in the continental United States. Included will be the Army area headquarters, plus corps, division, artillery and supporting units assigned to it, and available Reserve and National Guard Divisions. The exercise will include tactical and logistical support of ground operations under atomic warfare conditions. COMMAND POST is intended to train officers in new concepts, tactics, organization and techniques adopted by the Army.

ARTIC NIGHT is scheduled in the Northwest Command during February-March 1956. Employing one battalion combat team of the 187th Regimental Combat Team, the exercise will provide joint training in the employment of Army and Air Force units under Arctic conditions.

— COMMAND CHANGE —



General I. D. White
Commanding General, AFFE

Fort Lee, Virginia, will be the site of a logistics exercise, LOGEX, to be conducted in May, 1956. Plans call for officer students of the Technical and Administrative schools and Army Reserve officers to participate. It will afford them experience under battlefield conditions in the planning and conducting of operations in their respective services.

Approximately 2,000 troops of the 5th Regimental Combat Team will take part in Exercise MOOSE HORN, to be conducted in Alaska during January-February, 1956. MOOSE HORN is expected to provide experience in movement of a battalion combat team, over highway, under Arctic conditions.

HIGH SEAS SPECIAL, an amphibious exercise, will be conducted by the Sixth Army sometime in 1956, date and place to be determined later. Purpose of the exercise will be to train personnel in logistical support of amphibious operations.

Selected individuals from the continental United States will take part in ARCTIC INDOCTRINATION, to be held at Big Delta, Alaska, July-August, 1955, and January-February, 1956. The exercise will provide training in Arctic tactics and techniques.

Small Industrial Engine Family

A military "family" of small industrial gasoline engines will serve the Armed Forces if a long range development program under way at the Corps of Engineers' Research and Development Laboratories, Fort Belvoir, Virginia, is successful.

Working closely with industry, Army engineers are developing a family of seven engines in the ½- through 20-horsepower range which will eventually replace commercial engines in this range. Commercial engines have fallen short of meeting military requirements under adverse field conditions and when operating on military fuels and lubricants.

Both 2- and 4-cycle type designs are being investigated in an effort to exploit all the advantages of each type before a selection is made for the final military design. The program is aimed at meeting the requirements of numerous general purpose applications within these horsepower capabilities. It stresses generator service, since the electric generator is the greatest single application for engines in this range.

The new engines are being designed to operate efficiently for a minimum of 1500 hours before major overhauls are necessary. This is approximately three times the life of commercial small engines in these sizes. These engines will be easier to service and maintain, lighter in weight, and inherently designed to work under wide extremes.

During World War II, over 800,000 small gasoline engines, representing some 78 different makes and models, were procured by the military services to support military operations throughout the world. Since each engine consisted of approximately 300 different parts, some 23,000 different parts had to be stocked to support these engines. It is estimated that only 800-1000 parts will be required to support the new family when developed.

On the basis of equal production volume, the initial cost of the new military engines will be about twice that of their commercial counterparts. However, it is estimated that the savings which will be realized from standardization and increased performance will more than offset the initial cost.

Engines in the family will be intimately related by the use of many identical parts among sizes. For example, over 90 component parts will be identical in the 1½ hp and 3 hp engines alone.

The Laboratories and Industry are also working together to alleviate maintenance and supply problems brought about by the use of many different makes and models of intermediate and large size industrial gasoline engines. Much progress has been made in the field by standardizing the high mortality parts, such as pistons, rings, bearings and valves, used in these engines.

As a result of this program, the military services have procured approximately 16,000 industrial engines, incorporating these standardized parts, since July 1952.

Four-Point Training Program

Tennessee National Guardsmen with the 30th Armored Division trained again this summer under their commanding officer's unique four-point program.

Major General Paul H. Jordan, division commander, lists the four points as the improvement of the men physically, mentally, morally and spiritually.

"I want to put special emphasis on the spiritual training," General Jordan said. "With those four objectives achieved, I don't worry about military training missions. The rest comes easily."

General Jordan, who is an ordained minister in the Methodist Church, is particularly proud of the record the Tennessee Guardsmen made at summer camp last year and expects them to duplicate it this year. "I stress the spiritual training because we found from last year at Ft. McClellan (Ala.) that we never had a single disciplinary case. Our units received higher ratings than ever before in Guard history."

— COMMAND CHANGE —

**Lt. Gen. George W. Read, Jr.
CG, Allied Land Forces
Southeastern Europe**

The division commander was high in praise of the division's chaplains, who are headed by Lt. Col. James N. Kelley, Jr., of Shelbyville.

Two Billy Graham movies will be shown troops during the present encampment here. General Jordan, who is a close personal friend of the world-famous evangelist, arranged for the showings of the film when Graham spoke to the Guardsmen at Ft. McClellan last year.

12,000 National Guard Troops to Take Basic Training at Active Army Posts

A new program under which 12,000 National Guard enlisted men may volunteer each year for eight weeks of basic combat training at Active Army installations, where they will be integrated with other trainees, was announced recently by the Department of the Army.

— COMMAND CHANGE —

**Maj. Gen. Charles V. Bromley, Jr.
CG, The Armored Center**

The new plan, initiated on July 1, offers an inducement to National Guard recruits to complete their individual basic training in eight weeks. Implementation of this program will permit National Guard commanders to place more emphasis on unit type training during their armory drill and summer field training.

Upon completion of his eight weeks of basic training at any Army installation under the new program, each Guardsman will return to his State organization prepared to take advanced individual training.

These men can then be utilized as a source of future noncommissioned officers in the National Guard.

State authorities will be responsible for the selection of individuals who volunteer for training, and each trainee will retain his State status during the eight-week period.

However, the Department of the Army will prescribe training policies, and the Continental Army Command will be charged with overall responsibility for execution of the program. The commander at each installation will exercise direct responsibility for the training.

Individual quotas have been allocated to each State by the National Guard Bureau, which will provide all funds necessary to support the program except those required for installation maintenance and training.

Five Active Army installations have been selected for training of the National Guardsmen: Fort Jackson, South Carolina; Fort Leonard Wood, Missouri; Camp Chaffee, Arkansas; Fort Ord, California; and Schofield Barracks, Hawaii.

In order to maintain an even flow of trainees to each installation, 1,000 volunteers will start their training each month. Equal segments of the total monthly quota will enter the training cycle each Thursday.

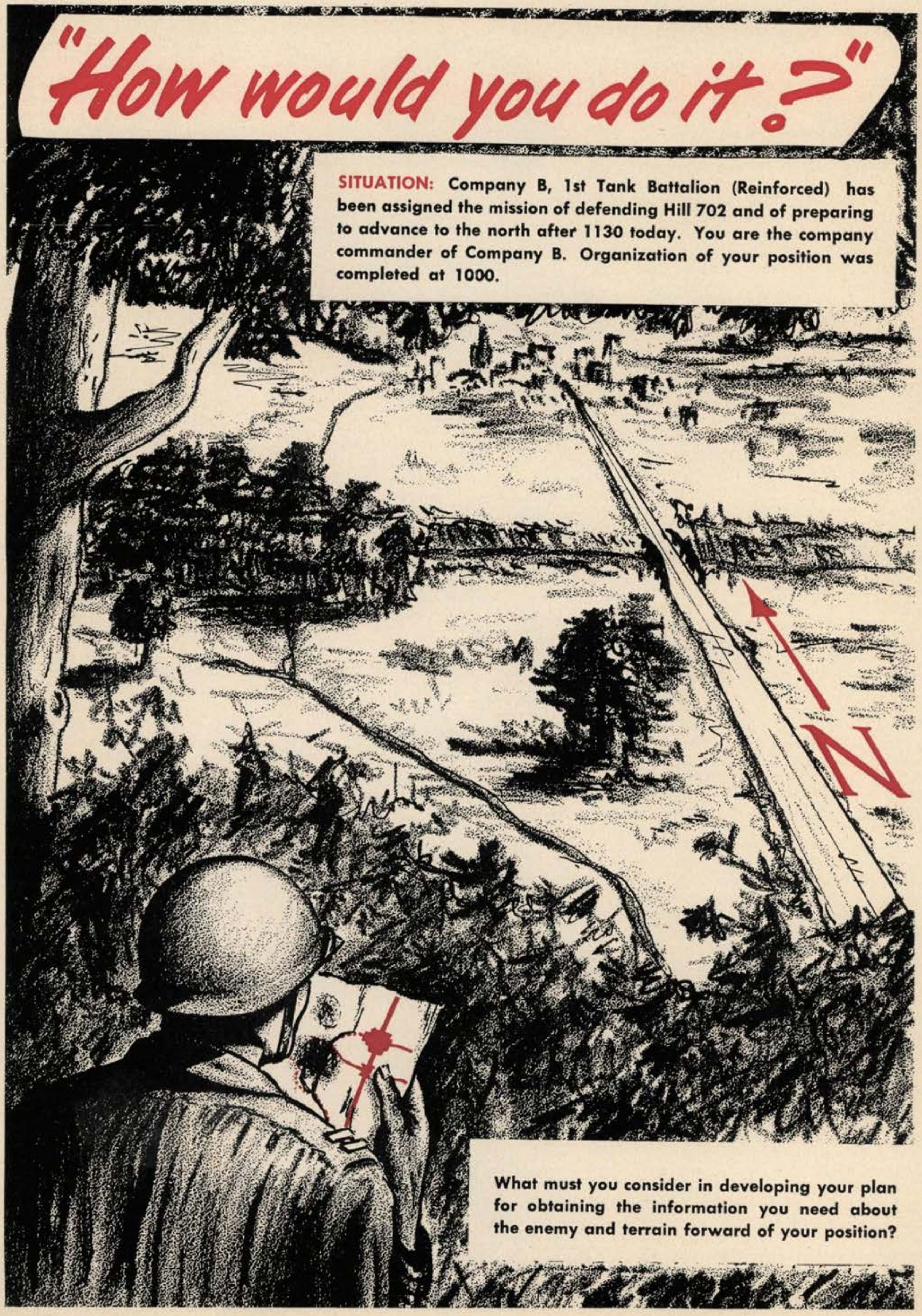
All training will conform to the Department of Army doctrine, tactics, and technique, as prescribed by pertinent field manuals, training circulars and technicals manuals.

While undergoing training, the Guardsmen receive the pay and allowances commensurate with their grade. Monthly payment will be made by Army Finance agencies. Transportation to and from the training installations will be by any means prescribed by the State Adjutants General.

All health, recreational, morale and religious facilities will be made available to the Guardsmen on the same basis as Active Army trainees.

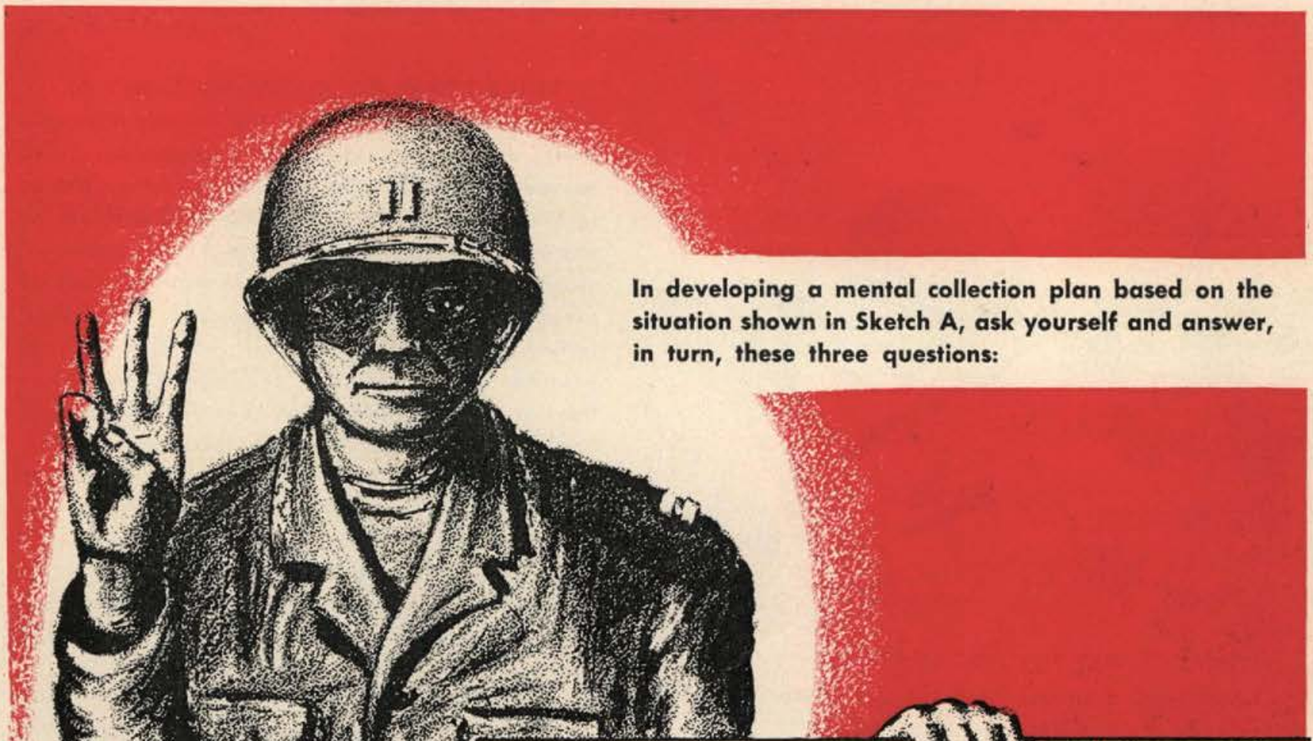
Although they will remain subject to the military laws of the particular State in which they hold National Guard membership, the trainees will be required to conform to all Army administrative orders and directives generally applicable to trainees.

"How would you do it?"



SITUATION: Company B, 1st Tank Battalion (Reinforced) has been assigned the mission of defending Hill 702 and of preparing to advance to the north after 1130 today. You are the company commander of Company B. Organization of your position was completed at 1000.

What must you consider in developing your plan for obtaining the information you need about the enemy and terrain forward of your position?

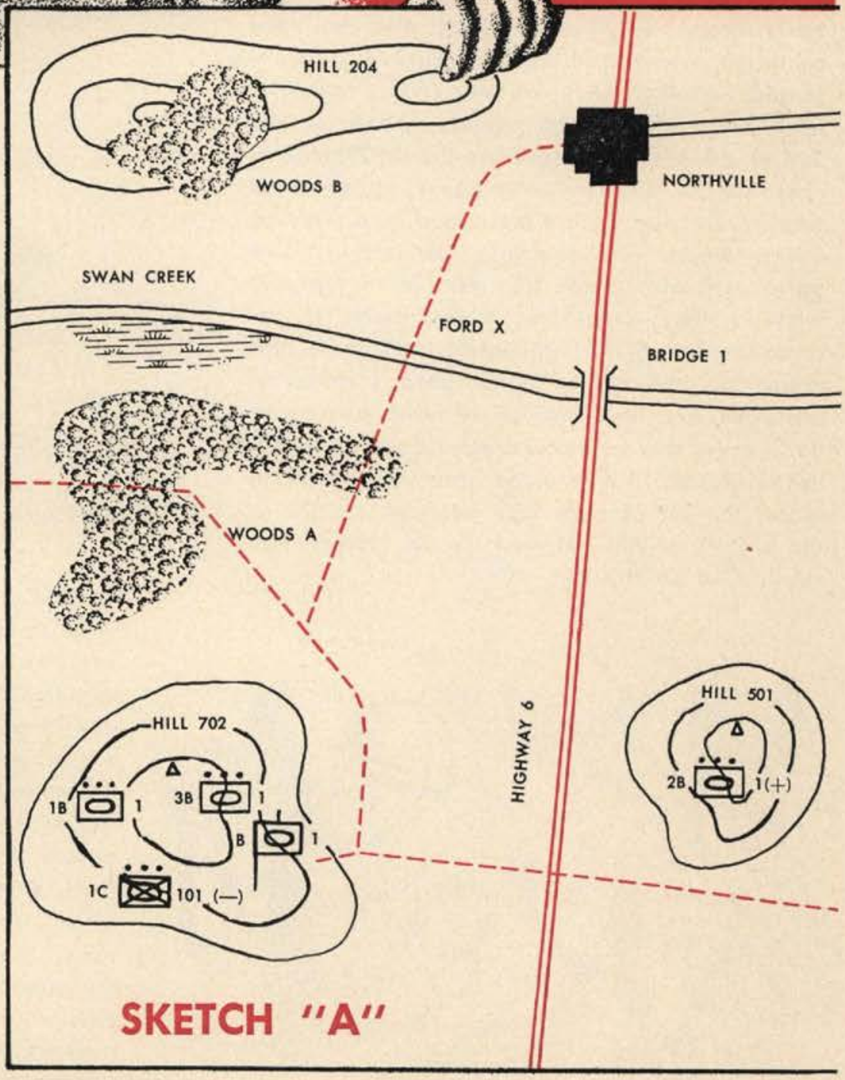


In developing a mental collection plan based on the situation shown in Sketch A, ask yourself and answer, in turn, these three questions:

1. **What do I need to know about the enemy and the terrain?**

2. **Who can get this information for me?**

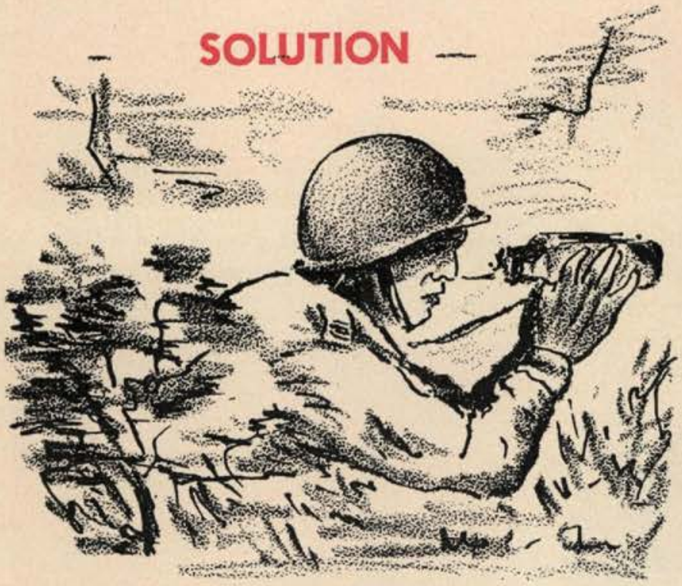
3. **What special instructions must I give these agencies in order to assist them in carrying out their instructions?**


HILL 204
WOODS B
NORTHVILLE
SWAN CREEK
FORD X
BRIDGE 1
WOODS A
HILL 702
1B 1
3B 1
B 1
1C 101 (—)
HIGHWAY 6
HILL 501
2B 1(+)

SKETCH "A"

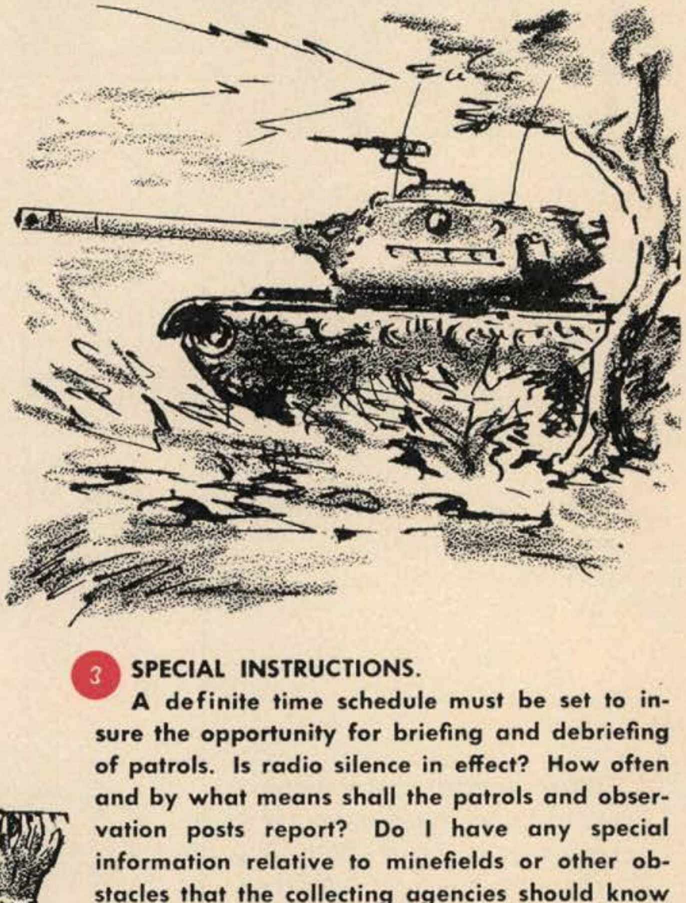
ILLUSTRATED BY CPL ROBERT F. BRUNNER

SOLUTION



① WHAT I NEED TO KNOW (see Sketch A):

I need information of the enemy forces—their disposition, strength, composition, and movement; specifically, are there enemy troops in Woods ABLE, Woods BAKER, NORTHVILLE, or the vicinity of Bridge 1 or Ford X? If possible, I want to determine the exact locations, types of weapons, and activity of the enemy. I also need information about the terrain and the effect of weather on the terrain. Is bridge 1 intact; are the approaches mined? What is the condition of Ford X, and what are the locations, widths, depths, and condition of any other fords? If Highway 6 or the trail cannot be used, will the soil condition permit cross-country movement? How dense is Woods ABLE: can we get our tanks through it? Are there any obstacles constructed and/or defended along Highway 6 or the trail?



② WHO CAN GET THE INFORMATION?

I will send a patrol from the 1st Platoon to Woods ABLE to determine whether I can get tanks through it. This patrol will also check the condition, width, and depth of Ford X, and determine whether there are any enemy troops in the vicinity of the ford, Woods BAKER, or Hill 204. I will send a patrol from the 2d Platoon to check on the condition of Bridge 1, to determine whether the approaches are mined, and whether enemy troops are guarding the bridge. This patrol will also check NORTHVILLE to find out whether there are enemy troops there. In accordance with SOP, both patrols will check and report on trafficability in the area, location of obstacles, and the condition of roads and trails. I will order that two observation posts be established to keep the forward area under surveillance; the 1st Platoon will establish an OP in the vicinity of Hill 702 and the 2d Platoon will set one up on Hill 501.

③ SPECIAL INSTRUCTIONS.

A definite time schedule must be set to insure the opportunity for briefing and debriefing of patrols. Is radio silence in effect? How often and by what means shall the patrols and observation posts report? Do I have any special information relative to minefields or other obstacles that the collecting agencies should know about? I must assign definite routes and locations. In the event of any unforeseen movement of my unit, what rendezvous areas are to be used? Many items of information that will assist the agencies in successfully accomplishing their mission, in minimum time with maximum effectiveness, may be overlooked unless I make a special effort to cover them in special instructions.

FROM THESE PAGES

65 Years Ago

Von Moltke had studied the theory of war from youth to old age before Austria, and then France, fell under his vigorous blows as a practical military leader.

★ ★ ★ ★

In every case a knowledge of the theory of war is a potent factor in the success of the commander, whether that knowledge be in the head of the general himself, or in that of his chief of staff.

The possession of ideas implies the construction of theories, which will be sound or the reverse, according to the information and mental make-up of the theorist. Men utterly devoid of theory are to be found only in the asylums for the feeble-minded. Colonel Home sums up the matter admirably by saying: "Practice and experience alone can decide many points; practice and experience alone can give the power of applying rules; but theory, by which is really meant the experience obtained by others, is not the less important and valuable."

Lieutenant Arthur L. Wagner
Sixth Infantry

Discussions on American Practice and Foreign Theory

50 Years Ago

That the measure of efficiency of a soldier is his ability to injure the enemy by use of his rifle is unquestioned. That a man with no previous knowledge of guns will be able so to injure the enemy to a useful extent is not to be supposed, for man must learn all things by study and practice. Therefore it is evident that to make an efficient soldier, the man must be taught the use of his rifle and practiced until he can use it effectively.

It naturally follows that the course of training should be such as will give the greatest results in battle. But while the battle result is the ultimate object, the course of training cannot be limited entirely by it. Human nature must be considered. Present interest must be obtained. A loyal desire to become an efficient defender of one's country for some future occasion does not gain men's interest so quickly, nor hold it so steadily, as the desire to excel others, or the possibility of gaining a substantial reward. Consequently the latter two motives must be relied upon. For various reasons the money reward can be gained by comparatively few, and the ambition to excel must remain the principal motive to which appeal can be made.

Captain Harry H. Pattison
Third Cavalry

Target Practice: A Proposed Additional Course

25 Years Ago

The development of motor driven vehicles has progressed far enough to make it possible for us, without undue strain on the imagination, to visualize a machine capable of maneuver and attack across nearly all types of terrain at a speed of from ten to sixty miles an hour, armored to the extent of being invulnerable to anything but a direct hit by artillery, and having the radius of action and freedom from mechanical breakdowns of an automobile. A unit made up of such machines may have within itself the firepower of artillery, machine guns, and automatic rifles, and may possess a shock effect and rapidity and range of maneuver greater than those of cavalry.

We are already in the habit of referring to such a unit as a "mechanized force." Discussions of it are appearing frequently, but it is doubtful if we have yet realized the profound effect this new arm will have on our tactics if the machine on which it is based is perfected to the extent indicated above. The tendency of the existing arms is to adapt the new arm to our present tactics. What we rather must do is to change our tactics to fit the characteristics of the mechanized force.

Lieutenant Colonel K. B. Edmunds

Tactics Of A Mechanized Force: A Prophecy

10 Years Ago

During the Russian retirement, Cossack cavalry did not fight a rear guard action, but raided the German rear, disrupted communications, and destroyed supplies to cause the enemy consternation and dismay. Its primary role was combat, not reconnaissance.

At Stalingrad a Russian horse cavalry brigade turned the German flanks and rear, created havoc and accelerated the tempo of the retreat until it became a rout.

It is little wonder the Germans feared the horse cavalry of the great Russian offensives. The Cossacks operated in coordination with armor, provided flank protection through difficult terrain, and played a major role in encirclements. The Russian principle was: "Tanks and infantry for a breakthrough, and tanks and horse cavalry for a breakthrough with encirclements." The Russians also say: "The hammer is our tanks, the sickle our cavalry."

It has been said by some people that "Primarily, the mission of cavalry is reconnaissance." The Russians do not agree to that statement, and they admit that they learned a lot about cavalry from us.

Colonel Albert E. Phillips

Facing Eastward With Horse Cavalry

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All photos U.S. Army

THE REVIEWER

Major General Clovis E. Byers, a 1920 USMA graduate, served in the Pacific during World War II in various responsible positions commencing as Chief of Staff, I Corps, then Commanding General, 32d Infantry Division and later as Chief of Staff, Eighth Army. Subsequent to the war and several Stateside assignments, he commanded the X Corps in Korea. Prior to his present assignment as Deputy Commandant of the National War College, he was Chief of Staff of Allied Forces, Southern Europe. General Byers holds the DSC, DSM and Silver Star with cluster.

Feature Reviews
Exclusive with
ARMOR

COMBAT SUPPORT IN KOREA. By Captain John G. Westover. The Combat Forces Press, Washington, D.C., 1955. 254 pp. $5.00.

Reviewed by
MAJ. GEN. CLOVIS E. BYERS

US. ARMY support troops' experiences during the period 1950-1951 in the Korean War have been collected in this volume after a year of interviewing individuals concerned. Major General Orlando Ward, the former Chief of Military History, clearly states the book's purpose as he points out: "knowledge of the roles assigned to others, together with a knowledge of the difficulties inherent in them, will make for better understanding throughout the Army."

Captain John G. Westover, the author, served forty-four months overseas in World War II, of which twenty-eight months were spent as a combat artilleryman in the 34th Infantry Division; then followed a period as a historian in the European Theater of Operations. It was during this latter period that the author became convinced of the importance of collecting combat experiences in order that junior officers of the Army might be better prepared by their perusal to perform their tasks and train their troops for success in battle. Following the war, Captain Westover secured his Ph. D., and joined the faculty of Arizona State College. He returned to active duty in the fall of 1951 with the Office of the Chief of Military History and was afforded the opportunity to prove the correctness of his premise as to the value of these interviews by actual experience.

Designed as a companion volume to the previously published study by Major Gugeler, *Combat Actions in Korea: Infantry, Artillery, Armor* (1954), its organization admirably fits the purpose for which it was written. It is divided into sections describing the experiences, primarily on the small unit level, of Corps of Engineers, Transportation, Chemical, Signal, Medical, Ordnance and Quartermaster Corps personnel, with one separate section dealing with security, combat and morale, and a final portion, entitled "short bits" depicting interesting experiences dealing with all the arms and services in such a manner as to make classification difficult.

No attempt is made to evaluate the experiences set forth, and no lessons are drawn for the benefit of the reader, but most of the interviews make the lessons quite clear and fall into age-old categories. There is an aspect of command supervision in every problem we encounter, whether it be handled successfully or inadequately. This supervision is the basis of our successes and failures regardless of the echelon of command to which we are giving consideration. For example, there was the incident of the organization in Korea that abandoned its entrenching tools because they were useless at that time in frozen ground. But when spring thaws came, inadequate stocks precluded the replacement of entrenching tools which then became extremely essential items in the face of the heavy Communist attack. The concern of commanders at every level to lighten the burden of the soldier should have dictated the collection of the entrenching tools and their storage with rear echelons, so that reissue might have been possible when the tools were once more needed. The supply discipline aspect of this problem can be appreciated, and the author has furnished several other illustrations which seem to the reviewer to furnish even clearer examples.

The successful application of command supervision is well illustrated by an episode which took place in September 1950. The First Cavalry Division and the 24th Infantry Division were faced with the problem of bridging the Kumho and the Naktong Rivers. The 24th Division found

THE AUTHOR

Captain John G. Westover served in North Africa and Europe during World War II. He received the Silver Star during the Tunisian Campaign. On his second overseas tour, he was assigned as assistant historian to Colonel S. L. A. Marshall, the Chief Historian, where he co-authored the book *Bastogne: The First Eight Days* and wrote other military studies. Following his tour of active duty in Korea, at which time he wrote this volume, he joined the faculty at Central Missouri State College, Warrensburg, Missouri. He holds a battalion staff assignment in the 128th Field Artillery Battalion, Missouri National Guard.

that there was a brief period during which it might loan a bridge to the 1st Cavalry Division, but no delay could be permitted in the time at which the bridge was to be returned. Nothing was left to chance in this respect! The assistant division commander of the 24th Division personally remained at the site to see that the bridge was dismantled in time to be returned to his divisions. The exchange was a complete success!

Disastrous aspects in lack of command supervision are well illustrated by a river crossing which occurred on the Naktong in September 1950. Only 27 hours were used to plan the crossing, and assault boats were not at first available to the engineers. The necessary reconnaissance was made and the infantry arrived in the final assembly area in ample time to be broken into boat crews and to receive elementary instructions. The jump-off time was 0245. Then at 0400 the assault boats arrived. No one was in charge of the convoy, and the drivers disappeared as soon as the trucks were halted. Day was breaking as the first wave started its crossing. Courageous work on the part of the infantry followed. Artillery, and close air support assisted in the assault and the engineers pursued their efforts with courage and determination. The crossing was successful, but it had cost the engineer company charged with the task 42 casualties. Had command supervision been given to the critical matter of assault boats, as was done in the matter of the bridge in the preceding example, the loss of life undoubtedly would have been materially reduced, for a night crossing might have insured complete surprise. At least it would have saved the troops making the crossing, the devastating effect of aimed fire.

Then there was the problem of supply discipline. Excess supplies are the pride of every garrison soldier and the bane of every combat soldier's existence. An ordnance maintenance company had 300 tons of parts in excess of its allowance. This burden nullified the mobility of the company to the extent that it was located 120 miles behind the Division Command Post. Two hundred trucks were deadlined for repair. Within ten days after a new commander reported, the excess spare parts were turned over to the supporting ordnance company. The ordnance maintenance company moved forward 100 miles, cleared the backlog, and was able to send detachments to the regimental combat teams, materially improving their ordnance support.

An engineer prepares to destroy a bridge to prevent its being used by the enemy.

At a time when the entire theatre was in a critical condition because of the shortage of supplies, and the nation was frantically sending spare parts to Korea, the story of the organization that was so busy it didn't have time to check its stock of spare parts was particularly exasperating. Even more maddening was the realization that the lack of concern on the part of the organization was explained by the statement that telephone calls to Pusan quickly produced the extra parts needed. Calls were an easier undertaking than searching through the excess parts.

Mines are double-edged weapons. There are illustrations of the value of defended mine fields and the surprise which always attends the speed with which a determined enemy may pierce an undefended field. One narrator reported having seen many of our tanks and vehicles that had been destroyed by our own mines, and a number of our troops killed because the enemy had dug up our mines

Ordnance worked around-the-clock to keep fighting vehicles in the front lines.

The communications in Korea were vastly improved over those used in WW II.

and relaid them. Such unguarded fields are a convenient source of supply of twenty pound mines for an enemy with a poor transportation system.

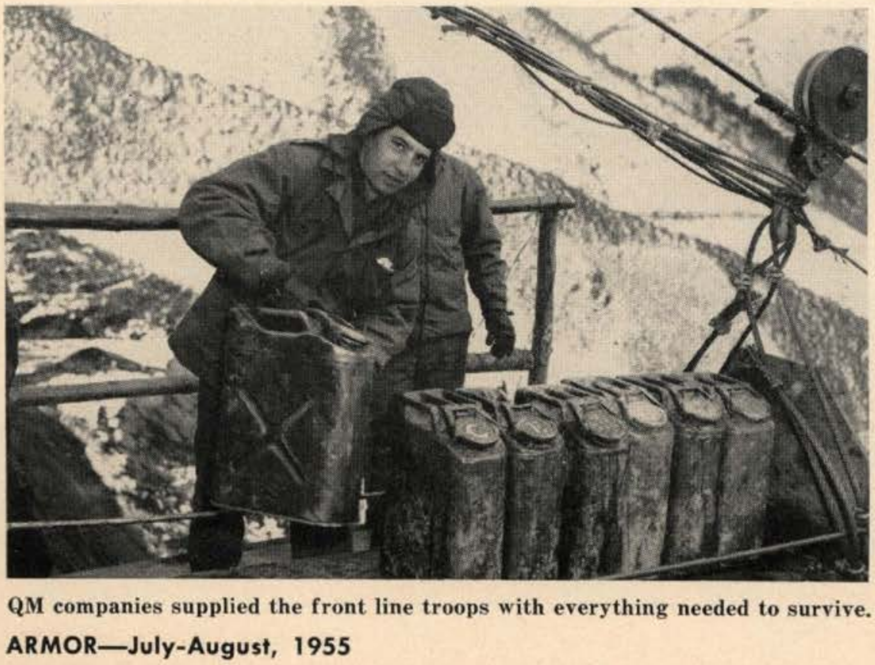
On the favorable side of the ledger is the account of the excellent use of mine fields by the 6th ROK Division north of Synnyong in September 1950. Well planned mine fields made a defile of a road. Mines that had not been activated were carelessly placed on the road where they could easily be located by the communist mine-clearing teams. Enemy tanks then could pass down the defile with confidence after their teams had removed the decoying mines. At the southern end of the defile carefully placed mines were activated and a final road block created. Engineer 3.5 rocket teams were placed at both ends of the defile with an infantry 3.5 rocket team in the middle. All teams were cautioned to withhold their fire until the final (southern) road block had been exploded.

Everything moved as had been planned. Shortly after midnight enemy tanks approached preceded by mine-clearing details. The easily found mines were carelessly thrown to the side of the road and did not explode. This led to increasing confidence as the tanks moved toward the final road block. When no more tanks were heard approaching, the defile was sealed by placing activated mines at the northern end. A lone tank that had fallen behind stopped to check its position near the northern 3.5 team. A direct hit caused the tank to burn and almost at the same time the southern road block was exploded by mine-clearing personnel. A direct hit from a 3.5 rocket fired by the southern team caused the second tank to burn. Both ends of the defile were sealed. Trip wires in the mine fields along the side of the road accounted for all the crews that were able to attempt to escape. That night the engineers and infantry destroyed five enemy tanks and at daylight the air force destroyed an additional nine. The defile had trapped fourteen tanks and their personnel.

Illustrations of faulty maintenance were numerous and devastating. A convoy making a night movement in Southern Korea was ambushed in a defile. The signal detachment had an SCR-193 radio, mounted in a jeep, but no contact could be made to call for help. Intermittent fighting continued throughout the night and frantic efforts in the dark to make the set operate were to no avail. Five hours later, with daylight and rescue, came the discovery that the antenna terminal was broken. Later investigation revealed that the faulty antenna had existed before the operation, but it was a spare set that had not been checked for some time, so nothing had been done about it.

Anyone who has maneuvered on the slopes of Mt. Fuji in Japan appreciates the fact that it is one of the rainiest areas to be found outside the tropics. A division had just finished its maneuvers in the Fuji area when it was ordered to Korea. There was so much that had to be done that wet signal equipment was packed for shipment *into the combat zone* without proper drying and processing. Equipment, which had functioned with 95% efficiency in maneuvers, failed 50% of the time in its initial combat action.

Effective maintenance requires time, trained personnel and competent supervision. In critical combat situations risks must be taken, for brief periods of time, with full reali-



QM companies supplied the front line troops with everything needed to survive.

zation that failure to correct the damage done will be far more time consuming in the long run. In combat, when one crisis follows another in never ending succession, seasoned commanders know there is no substitute for adequate maintenance. Only when inexperienced commanders have the support of a fond and indulgent nation can their flagrant disregard of this important matter—under the guise of determination to "get results"—be tolerated. This point is well illustrated by the experience of an engineer construction battalion in Korea shortly after the operation started. Top priority was given to the construction of a POW inclosure involving draining and filling the lower areas of a rice paddy. The burrow pit was five miles away. Additional trucks were on hand, but there were no drivers. It was finally determined that sufficient supervisory personnel were available to permit the employment of 43 trucks driven by Korean civilians who were to be trained as drivers. Trucks were to be moved in convoy to control speed, and daily motor stables would be held with Korean interpreters relaying instructions.

The system worked well and for two months an average of 80% of the trucks were servicable and dispatched. Finally came the demand for speed and results. The convoys were broken up and each driver was on his own. Trucks disregarded speed limits and there was no waiting when a truck was full; it moved out at once! In three weeks half the trucks were deadlined. Where was the saving?

In periods of great trial one of the most stimulating experiences an individual may have is the realization of the ingenuity with which troops overcome the most difficult obstacles. Doctrine teaches that wire is the primary method of signal communication, but requirements of speed, distance and terrain demanded another solution. VHF radio offered possibilities. However, the height and inaccessibility of Korean mountain ridges presented problems to be solved if the 25 mile line-of-sight range of the VHF radio was to be adequate. It was found that lower frequencies bent easier than the higher ones, and soon "bank shots" became a routine thing. To illustrate, one terminal was at 300 feet, the other at 600 feet and they were separated by a 2100 foot ridge. The technical calculations indicated that the circuit couldn't work—but reception was perfect.

Army Medical Services kept the fatality rate in Korea the lowest of any war.

Ingenuity, determination and no small amount of courage were exemplified by a Turkish organization that was issued 340 feet of M38 infantry foot-bridging and assigned the task of crossing a river at a site which was under heavy mortar and artillery fire. The commander decided to save lives by assembling the bridge behind a small crest 150 yards from the river bank and then have several hundred troops hand carry it to the water's edge. The bridge broke several times during the movement, but each time it was lowered to the ground, repaired, and the carry resumed. It was a smooth operation, quickly executed.

That portion of the book dealing with the Corps of Engineers has already been drawn upon for several illustrations. Nevertheless, it is felt that the work of engineer reconnaissance teams deserve special mention. Reconnaissance Daily was such a team. Master Sergeant Warren F. Daily was assisted by Sergeant Earl J. Cayemberg (radio operator) and Corporal Elmer L. Bartley (driver). They operated with or ahead of the

In Korea the 2½ ton truck was still the work horse for moving up all supplies.

Transportation moved supplies from ports to depots with speed and efficiency.

infantry, during the period 2-9 April 1951, enabled the infantry to avoid many dead-end roads, and by their technical reconnaissance and radio reporting, facilitated the dispatch of adequate engineer support for necessary repairs to bridges and roads. Such reconnaissance is dangerous, strenuous and seldom appreciated work, but it is a valuable factor in the engineer support of the infantry.

There is a trite comment, made in the past, that field expedients are essential to combat engineer operations. However, when an engineer replaces a bridge with a twelve-inch culvert and uses rubble for fill, it is not field expediency—it's plain ignorance!

The operations of the Transportation Corps are illustrated by a number of practical problems. In the spring of 1951 as the Eighth Army fought its way back north, highway transportation became increasingly critical. In an effort to insure maximum utilization and flexibility in the employment of X Corps trucks, a "Truck Bank" was formed. Technical services canvassed their units and all trucks not handling essential cargos were collected. Fifty to sixty trucks were thus made available to the "Bank." In addition, M. P. check points were established near each ammunition supply point. All empty trucks going north, except emergency vehicles, were loaded with ammunition. The drivers were given notes stating the amount of time their trucks had been so employed. An average of twenty-five trucks per day were pressed into service in this way. Ordnance companies kept maintenance patrols on the roads twenty-four hours a day and light aircraft were used to spot disabled vehicles. Where possible, vehicles were repaired on the spot. It is believed that one hundred percent utilization of vehicles was approached in this operation.

MP's maintained law and order in addition to handling all traffic to the front.

The Military Rail Service is used to illustrate the value of a sound system of control over the "expediter" system in the movement of critical cargo. In July 1950, trains weren't moving the huge quantities of supplies as fast as ships were being unloaded at dockside. Pusan Base Section was loaded with supplies, the fighting divisions sorely needed the items, but the railroads could handle only critical supplies. What were critical items? Senior officers at headquarters were designated "expediters." They would go to dockside or to the marshaling yards, each to pursue his "pet mission." Supplies in the process of movement would be shunted aside and the new priority items would be sought out. When a new "expediter" arrived the shunting process began all over again.

The situation eventually became so critical that a coordinated plan had to be formulated. A control system was established to determine the daily tonnage that could be moved to a given destination. Requirements of the various technical services were determined, evaluated, and appropriate loadings authorized. Clearance was necessary to move the train. It wasn't a perfect solution; it had its frustrating faults, but it brought order out of chaos.

The Chemical Corps discovered that the variable and unpredictable mountain winds in Korea made the use of smoke difficult. In addition, units worked so closely together that smoke which helped one often hurt another.

Napalm was identified as very effective against enemy personnel and as an anti-tank weapon. During the early days in Korea, difficulty was experienced in securing a good mix because there were no thermometers to test the temperature of the gasoline. When thermometers were secured and a new mixing unit (the E3R2) received, satisfactory production was developed. An average good day's expenditure of napalm was: Air force, 45,000 gallons; Navy, 12,000 gallons; Marines, 5,000 gallons. One interesting cause of napalm duds was uncovered. The absence of hostile ground fire permitted pilots to bomb as low as twenty-five feet. However, at that altitude there were an excessive number of duds.

The Signal Corps, in the mind of this reviewer, deserves at least one comment that none of the interviews developed. The signal communications in Korea were as effective as the U.S. Army has ever experienced in combat. However, there was the age-old complaint about the practice of encrypting messages for transmission by radio when faster means of delivery were available by liaison plane and motorcycle or jeep messenger.

Incidentally, the Signal Corps won back its wings in Korea through its use of the liaison plane for the delivery of mail and divisional aerial photographic missions. If accurate interpretation of photographs is to be made, prints of the same area taken on three successive days are necessary in order to determine the change in activity. The normal Army-Air Force channels took eight days from request to delivery at a division headquarters. The photo section of a division signal company said it could improve on this time factor and was authorized to try. As a result of their efforts, photographs taken one afternoon in which enemy dugouts, bunkers and foxholes were clearly indicated were delivered to the photo interpreter the next morning.

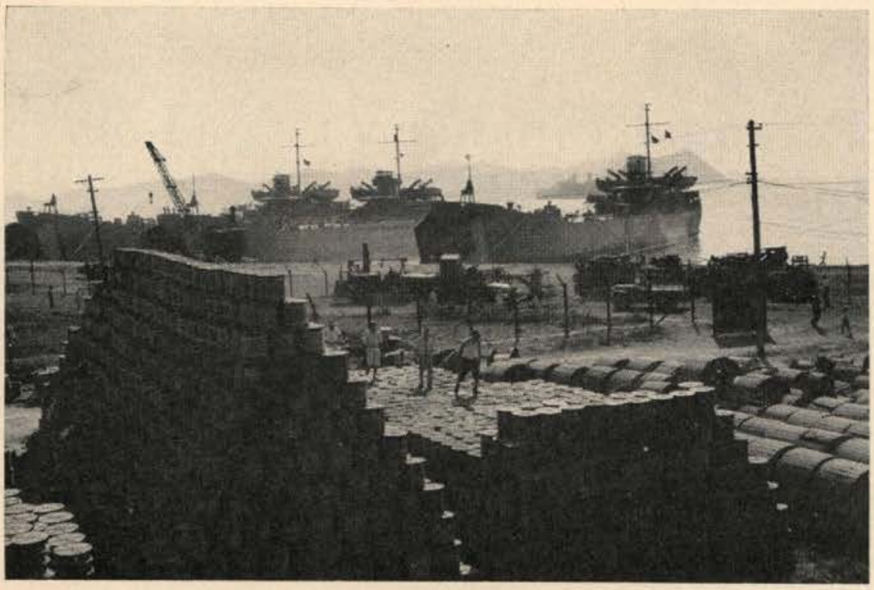
The Medical Corps has consistently moved surgery closer and closer to the front line in order that serious cases might be handled as promptly as enemy fire would permit. The location of the portable surgical hospital as far forward as the battalion aid stations in the Southwest Pacific during World War II saved countless lives, but even then the four man teams of native litter-bearers frequently had carries of several hours duration through the swamp to the jeepheads. The mountains in Korea presented similar evacuation problems. Carries of an hour and a half and two hours were normal until use of the helicopter became common. By November 1951, helicopters had evacuated eight thousand casualties, many of whom would not have survived without this transportation. The smooth ride and the rapid arrival at a clearing station or hospital possibly caused a lower rate of shock fatalities than during World War II.

This same principle of moving the treatment forward was followed by the dentists of at least one division. When dentists had been concentrated in one clinic, the patients lost a whole day each time a treatment was necessary. When detachments were sent to regimental combat teams the number of treatments increased from 1000 to 8000 per month. Thus more dental work was accomplished and far less time was lost by soldiers seeking dental care.

The people of the Ordnance Corps heard commanders in Korea describe that conflict as a contest between enemy manpower and U.S. firepower

Korean labor was used in supply depots to keep all needed items stock piled.

Combat elements cut off from friendly lines were supplied by parachute drops.



Panoramic view of Signal base showing improvements, such as fences and stock.

and correctly wondered whether such a rate of fire could be maintained in a global war. The astronomical rates attained in Korea were possible only because a relatively small number of representative sons, from the Free Nations of the World, were fighting a battle for the Free World, and the people back home were determined to see that the "boys at the front" lacked nothing!

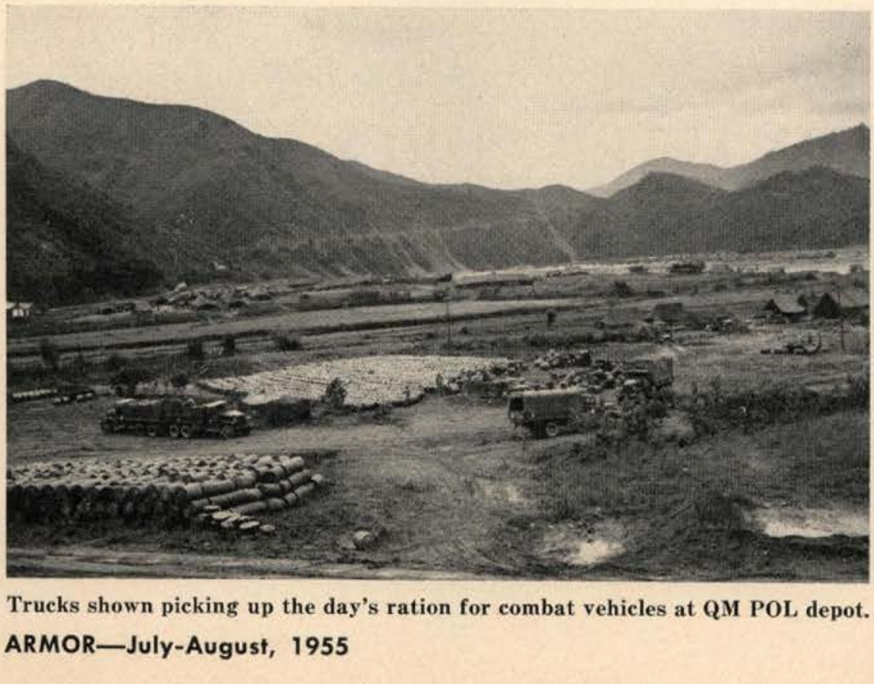
That the men at the front worked to deserve such support from home is illustrated by a division ordnance detachment during the withdrawal in December 1950. No effort was spared to save every piece of equipment possible. At a halt for the night it was learned that eight tanks could go no further without an engine change. The temperature was ten degrees below zero that night. Tents were erected, bonfires lighted and work started about 1800. By 0600 the eight tanks were on the road with new engines. It was a close call because the communists entered the village at 1200 that day.

The Quartermaster Corps did an amazing job in Korea. All who were there will agree that the front line man was the best fed of any fighting man in history. But the division supply officer who drew for 35,000 in place of 13,000 must have witnessed some profligate waste! The reviewer is forced to the conclusion that had the strength of the attached regiments and non-divisional troops been included in the strength return, the resulting figure would have more nearly approximated the 35,000 number which Pusan so quickly honored.

There was also the story of a division that could move its headquarters with 25 trucks when it first went to Korea. Soon the same headquarters required 50 trucks. The officer recounting the experience confirmed the contention of Brigadier General S. L. A. Marshall that when you overload a soldier you decrease his efficiency.

This review started with a consideration of the importance of command supervision, and for the sake of emphasis will use this subject for the concluding examples. One interviewer checking on wet-cold clothing indoctrination bewailed the fact that when the temperature was zero, officers told the troops to wear combat boots in snow rather than the shoe packs because they were lighter and better for marching. Apparently those officers did not know that leather boots get wet and soon freeze. No matter how many times socks were changed, no change of footgear was possible. To make matters worse, many who walked through water were placed on vehicles and rode for several hours without being able to exercise their feet. At zero temperature, frostbite was then a certainty.

The very next interview in the book stresses the fine command action which was taken by the regimental commander whose experience had demonstrated that combat boots were better than shoe packs for marching and climbing in rugged terrain, and therefore had directed that combat boots be worn under these conditions. This article stresses that under the careful supervision of the regimental commander the incidence of frostbite and other cold injuries was extremely light. Obviously common sense must be applied. As one of the individuals interviewed remarked: "You cannot make clothing and equipment fool-proof under all conditions, so we must train our troops."



Trucks shown picking up the day's ration for combat vehicles at QM POL depot.

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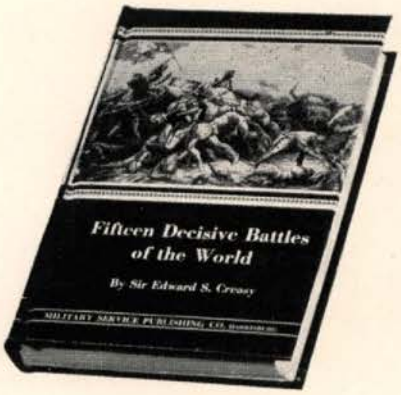
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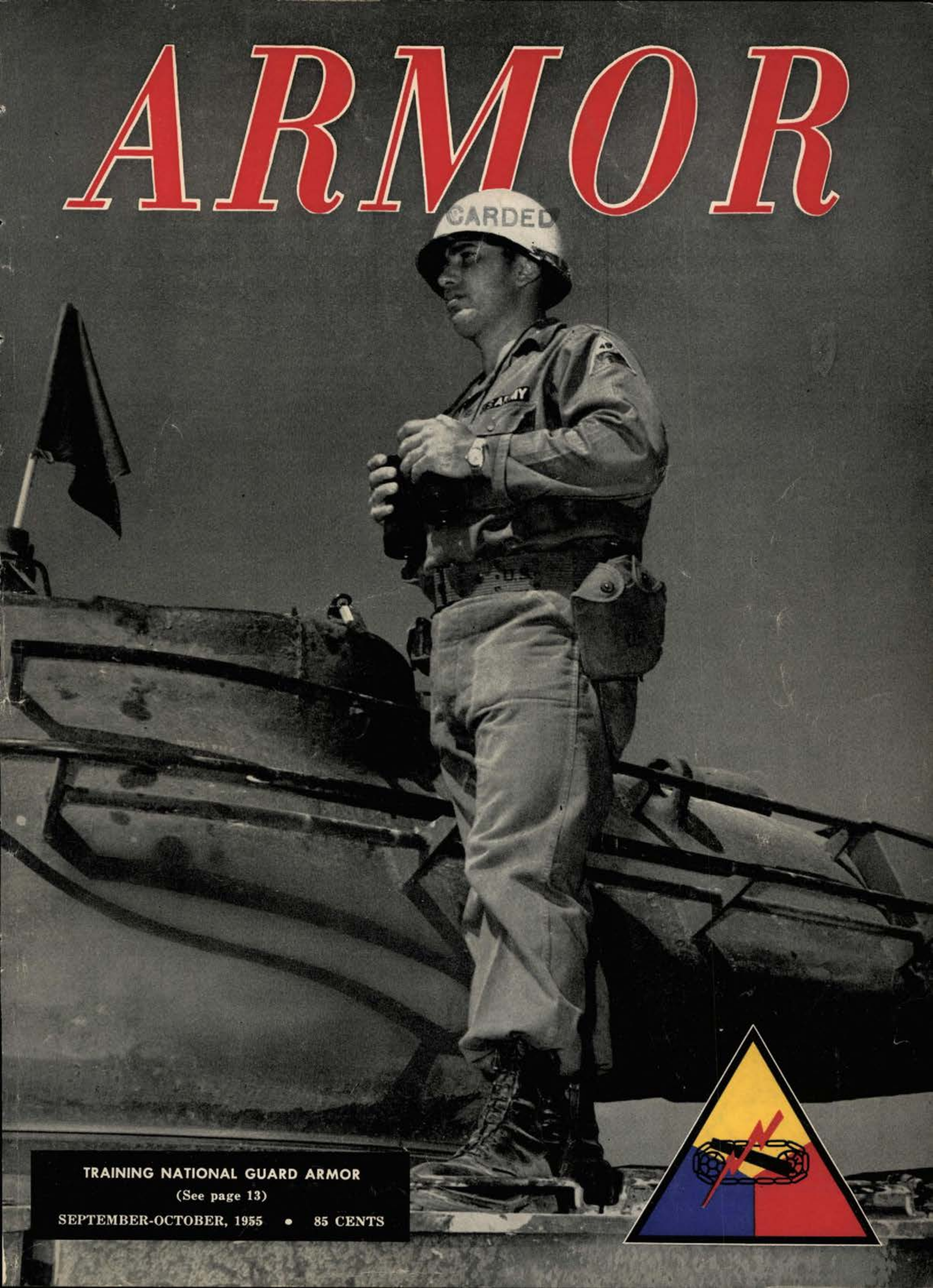
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(See page 13)

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A WORD ABOUT BOOKS

When our Association was organized, it was with the constitutional purpose "to disseminate knowledge of the military art and sciences" and "to promote the professional improvement of its members."

The bylaws implemented this object by providing for "a professional and scientific journal" and "a book department for the sale of books, maps and periodicals."

Within this brief background lies the reason for our Book Department in the Association and our book Section in ARMOR.

The member of the Association derives a two-way benefit from purchase of books through the Association. On the one hand he is taking advantage of certain services which are available, such as being kept informed on material in his special sphere of interest. On the other hand, he is contributing his business to the Association in the only area of financial return over and above membership-subscription income—through publisher discounts made available to the Book Department. This income goes back into the magazine and the Association, and thus to the individual member.

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COMBAT SUPPORT IN KOREA

by

Capt. John G. Westover

The thousands, soldier and civilian, who have read and enjoyed and profited from COMBAT ACTIONS IN KOREA will want this companion book. Here is more combat action, plus the workings of the vast logistical system that makes it possible for the infantry, artillery and armor to fight.

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LETTERS TO THE EDITOR

Tank Versatility

Dear Sir:

Your center spread on tank versatility which appeared in the July-August issue of ARMOR was most interesting to say the least. However, probably for lack of material it is incomplete.

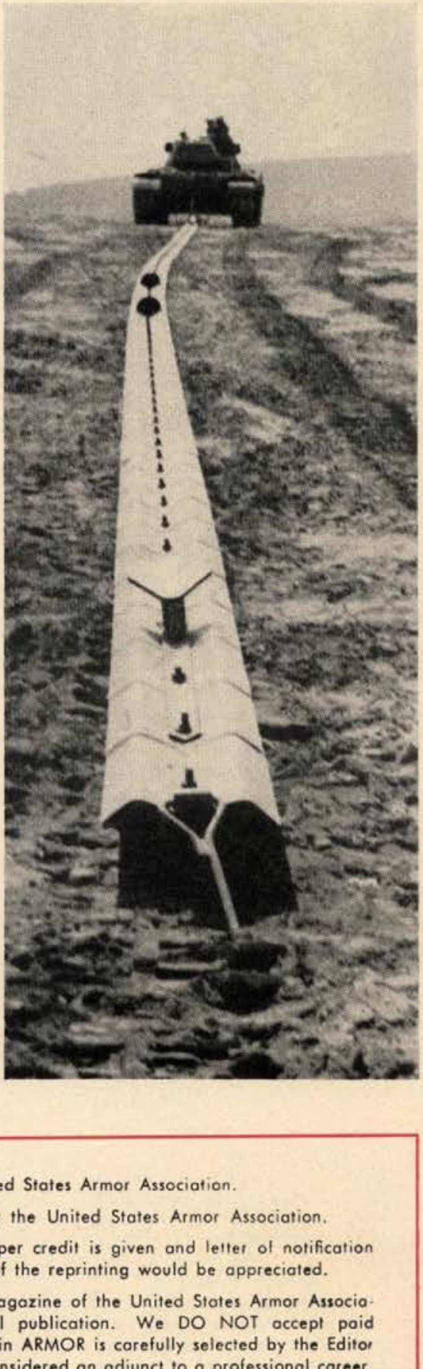
I am sending you herewith another picture which shows that our mighty fine tanks can accomplish practically anything which they are called upon to do.

Clearing a minefield often presents an almost insurmountable problem to combat soldiers. It is a much easier task when Armored personnel employ a snake—an expendable length of explosives—to assist with the job. The tank is shown here pushing the snake into position to breach a path through the minefield enabling both Infantry and Armor to pass through.

There is no doubt in my mind that United States Armor personnel could come up with more examples of tank versatility. How about encouraging them to submit more examples by sending you pictures and stories so that we may all have a look and benefit from their experiences?

MAJOR JAMES W. CAMPBELL
Associate Advanced Course #3
The Armored School, Ft. Knox, Ky.

• *Thank you very much! ARMOR is appreciative of receiving this photograph shown in the next column. For only by such means do we obtain the informative articles necessary to make up a worthwhile magazine. The context is all yours—each and every member—the more you submit the better selection we will have. As similar uses for*



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Rates: See bottom of contents page.

Armored vehicles are submitted we will publish them here for the benefit of all. Ed.

Assistance Offered

Dear Sir:

I read with a great deal of pleasure the article "A Seminar on Mobility in Warfare" by Lieutenants Garn and Gilpatrick which appeared on page 14 of your July-August issue.

In reading the article I noted that you have offered to furnish a list of the pamphlets we used here at West Point in setting up our Seminar.

Those of us here at West Point who worked on the project wish to state that we also are ready and willing to give assistance to anyone desiring to establish a similar group. I might add that in starting and conducting this Seminar we found it an interesting and gratifying task.

If anyone desires any assistance or more information they can contact me at the address below.

. Colonel Michael S. Davison
Department of Tactics
USMA, West Point, N.Y.

• *To date several requests for the pamphlets have been received and filled.* Ed.

Out of Print Books

Dear Sir:

Reference the July-August issue of 1955, you state that requests for out of print books may be made through Armor. The following is a list that I would like to purchase from anyone that desires to sell. All books are the work of Major General J. F. C. Fuller.

Tanks in the Great War
Generalship of U. S. Grant
Training Soldiers for War
Memoirs of an Unconventional Soldier
On Future War
The Foundations of the Science of War
Watch Words
Thunder Bolts

Aid in any form that you may be able to render in obtaining these books will be greatly appreciated.

1st Lt. John A. Albree
Headquarters, 4th Tank Bn
Fort Hood, Texas

• *If anyone desires to sell any books listed above please contact either the writer of the letter direct or this office.* Ed.

Awards for Merit

Dear Sir:

For the past two years one of my officers has contributed anonymously the sum of $38.00 to provide for a year's Associate membership in the United States Armor Association for the eight outstanding non-commissioned officers selected from the 50th Armored Division separate battalions and major commands based on their performance during the Summer field training period.

This officer feels that this recognition creates a great deal of interest in Armor and desires to continue it again this year.

It is also an excellent means to recognize outstanding soldiers. The eight men are:

Sgt. Michael Roka, Co D, 104th AEB
Sgt. Andrew Knapp, MP Co, 50th AD
MSgt. Martin W. Krieck, Co C, 50th Recon Bn
SFC Ralph C. Hodges, Svc Btry, 199th AFA Bn
Sgt. Philip E. Pagano, Co B, 50th AOB
SFC Leo Gross, Co D, 113th Tank Bn
Sgt. Anthony C. Como, Co A, 216th AIB
Sgt. Charles H. Kulp, Hq & Svc Co, 114th Tk Bn

Major General D. W. McGowan
50th Armored Division, NJNG
Newark, New Jersey

• *Congratulations to the winners.* Ed.

Request for Material on Mobility

Dear Sir:

The Army Ordnance Historical Branch wishes to take advantage of *ARMOR'S* recent offer to furnish extensive bibliographical material on mobility in warfare. Such reference material and the report on the West Point Seminar on Mobility in Warfare in July-August 1955 issue will be valuable to Ordnance personnel in preparing the overall history of the Ordnance Corps.

In the past Ordnance historians have extracted much valuable historical data from *ARMOR*. For example, the article on *Tank Diesels* in the July-August issue presented an excellent background picture of developments, and the preceding issue summarized the protection and mobility offered by tanks in exploiting an atomic blast as revealed in the April 1955 tests. Other similar articles make this magazine an excellent reference for Army Ordnance personnel.

Raymond J. Snodgrass
Current Historian
Office of The Chief of Ordnance
Washington 25, D. C.

Help Wanted

Dear Sir:

Several months ago, the Army Ordnance Corps initiated the preparation of a comprehensive Ordnance Engineering Design Handbook to summarize fundamental principles and basic design data. The handbook is being written to provide needed information to Army ordnance and arsenal personnel and to the engineering staffs of contractors having ordnance design responsibilites.

First impetus to prepare the Ordnance Engineering Design Handbook developed during the Korean War, when it became evident that availability of a central reference of ordnance design information would have materially speeded up the design, development and production of new military weapons. In a future conflict, need for such available publications may be even more acute.

This letter is being written to enlist the aid of your readers. Specifically, I would like to identify from among them those that are actively interested in terminology and nomenclature problems.

As you know, ordnance engineering cuts across many fields of science and technology, and information for design work is drawn from many diverse fields of knowledge. It is no easy matter to establish definitions for many ordnance terms that are also used in other areas of science and technology. Cooperation in avoiding confusion as to meanings of terms should prove helpful not only to designers and users of ordnance, but also to your readers.

If any reader has either a formal or informal collection of terminologies, glossaries, specialized dictionaries or even references to them please contact this writer at the address below.

Allen Kent
Associate Director
Center for Documentation and
Communication Research
Western Reserve University
Cleveland 6, Ohio

THE COVER

The cover shot, taken at Fort Hood, Texas by Sergeant Treadway of the Post Photographic Laboratory, shows a platoon leader of Company A, 156th Tank Battalion, 49th Armored Division, Texas National Guard giving firing instructions to his crew prior to action on the Fort Hood Tank Gunnery Range.

CARDED

All Photos U. S. Army

THE VERTICAL PATROL

Military leaders constantly strive to increase the mobility of their forces. Recently much has been written of the helicopter. In recent maneuvers many tests have been made of this versatile vehicle. Some of its uses in conjunction with Armor are described in this article.

By CAPTAIN JOHN C. BUCHANAN

WHAT is the hardest part of a patrol mission? Ask any man who has crept, crawled, ridden, or fought a patrol out into hostile ground; the roughest part of the job is getting the patrol to and through the enemy main line of resistance. Once the patrol can get into the relatively soft enemy rear area, the going becomes easier, the enemy defenses are less alert and less effective.

During Exercise BLUE BOLT, conducted at Fort Hood during this past February, the 1st Armored Division made use of the seven H19 helicopters assigned to the Combat Aviation Company to carry patrols over and past that critical barrier, the Aggressor main battle position. The three types of airborne operations conducted were helicopter-landed patrols, a helicopter raiding party and the resupply by H19 of detachments operating in the enemy rear. Each type merits further study and consideration.

Two helicopter-borne patrols were landed behind Aggressor lines with the mission of observing and reporting Aggressor movements at critical road junctions. Landing at dusk, these six-man patrols met a varied reception. One, observed by the enemy as it dismounted, was scattered and rendered ineffective. The other patrol, whose arrival was apparently unobserved, established an OP covering its assigned area and succeeded in reporting the enemy's movements as he disposed his forces to meet the attack of one of the Division's combat commands (CCB). Remaining at the selected vantage point until relieved by leading units of CCB, the patrol furnished continuous information of Aggressor's actions to the combat command commander.

A second use of the cargo helicopter, to transport a small detachment behind enemy lines, was demonstrated by the successful action of a helicopter raiding party. Flying on a dark, moonless night, an H19 succeeded in locating a previously selected landing area within striking distance of an Aggressor command post. Utilizing the landing searchlight as he slowly descended into the total darkness beneath him, the pilot succeeded in making a landing in unfamiliar terrain. The eight-man detachment disembarked from the helicopter with their demolitions and light machine gun in less than 30 seconds and rapidly moved cross-country toward their objective. The Aggressor either failed to observe the landing, which was made behind a hill mass, or considered the helicopter to be friendly, as no reaction was forthcoming. The raiding party quickly closed on the Aggressor CP, placed demolitions under the operations vehicles, and then generally "shot up" the headquarters, before successfully withdrawing to friendly lines.

Night helicopter resupply of observation posts located inside the Aggressor lines was also carried out by the 1st Armored Division during Exercise BLUE BOLT. Although executed on a dark, moonless night, and complicated by the lack of direct radio contact between the helicopter and the ground party, this mission was successfully carried out due to pre-arrangement of (supply delivery sites) and arrival times. The landing area outline was marked by flashlights, as agreed upon prior to the patrol's departure. By means of this night supply system, a six-man reconnaissance patrol was able to maintain OP's covering the primary road nets to the rear of the Aggressor battle position, as well as to reconnoiter the Aggressor rear area.

From the foregoing three examples, a pattern of successful helicopter-borne patrolling begins to emerge. Let's back off a bit and look at that pattern, and as we do so ask these questions:

1. Is this extensive use of helicopters valid combat tactics?
2. Is this just maneuver play—the sort of thing that works only if the enemy is firing blanks?
3. Can the lumbering "Chopper" survive in deep flights over hostile terrain?
4. Will enemy aircraft enjoy an H19 turkey shoot if we don't have absolute air superiority?

The first thing we note about the use of helicopters over enemy-held terrain is that all of the successful flights were made at night. Although helicopter pilots profess not to worry too much about the chances of being shot down by high performance aircraft, which they believe can be eluded at low altitudes, the prospects of facing ground automatic weapons fire is a horse of several different hues. The cargo helicopter flying at 100 MPH is a fine, fat target as it skims at the low altitudes necessary in order to hide from hostile aircraft. The pilots are unanimous—"Yes Sir. I'll fly you as far into enemy territory as you want to go—AT NIGHT! !"

Night flight is normally acceptable for all patrol activities, but it imposes severe requirements if the operation is to succeed. First of all, the H19 has only basic navigation equipment and, as now equipped, cannot locate a specific point on the ground without visual contact. Moonlight, either natural or artificial, is normally sufficient to allow a safe landing in an area previously selected by detailed photo reconnaissance. Artillery fire may be prearranged to aid navigation, and an illuminating shell, fired at the pilot's call, may be used to supply the light necessary for a safe night landing. In addition to the coordination required to obtain this artillery assistance, the requirement imposed by night operations for a thorough reconnaissance of the flight course and landing zone cannot be overstressed. A patrol hastily conceived, and blindly dispatched to an unreconnoitered landing area, is likely to find disaster at the end of its flight. Map, aerial photograph, and, if possible, aerial reconnaissance conducted by both the helicopter pilot and the patrol leader, are prerequisites to successful helicopter-borne patrolling.

In addition to fulfilling the requirement for prior reconnaissance imposed by night operation, the commander must be guided by the most complete intelligence available in selecting the areas to be used as landing, pick-up, or supply delivery sites. Known or suspected hostile concentrations, inhabited areas, logical troop positions and areas close to traveled roads should be avoided.

So we fly at night. We keep low enough to avoid antiaircraft radar detection. We may employ prear-

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ranged artillery illuminating fires to guide our flight and aid our landing. We base our selection of routes and areas upon thorough reconnaissance and consideration of all available intelligence. Are we ready to crank up the old whirlibird and sally forth?

No, not yet. We've got the mechanics of the flight arranged, but now we need to consider the patrol itself. No matter how it arrives at its destination, the size, composition, and equipment of a patrol are dictated by the mission to be accomplished. This principle guides the formation of the airborne patrol, even though the helicopter imposes some additional restrictions.

As a general guide, the H19 can carry eight combat equipped men 25 miles from the point of take off, land them and return with enough fuel to provide a margin of safety. Weather further affects the capabilities of the helicopter. In addition to the flight limitations imposed by precipitation, high winds, or zero visibility, clear, hot, dry weather reduces the lifting ability of the rotary wing through a reduction in air density.

Experience gained by the 1st Armored Division in the use of helicopter-landed patrols indicates that four men comprise an optimum deep reconnaissance patrol under normal conditions. As the deep patrol can find security and survival in stealth alone, its size must be held to a bare minimum. Addition of a few extra men to provide firepower should be avoided, as the maximum ten-man helicopter load becomes a Frankenstein—too big to hide, but too small to fight for survival. Four men are sufficient to keep an area under continuous observation, and to maintain a 24-hour radio watch.

Equipment carried by the reconnaissance patrol should be reduced to essentials, but certain duplicate items should be carried. Among these are the following:

1. AN/PRC 8 radios and spare batteries
2. Lensatic compasses
3. Maps of the area of operations
4. 7 x 50 binoculars
5. Flashlights

For a patrol of only a few days' duration, reduced assault rations will suffice. The most promising solution to the water supply problem appears to be offered by having each member of the patrol carry two canteens and a supply of water purification tablets. In keeping with the principle of traveling light, only shelter halves or ponchos should be carried as bedding, if weather conditions permit. Either carbines or rifles are suitable patrol weapons; however, one member of the patrol should be armed with the submachine gun.

Patrol communication should receive special emphasis, as a breakdown in this field will nullify the value of the operation. The AN/PRC 8 radio, the sole set currently available to a deep patrol, has a limited range and battery life. While spare batteries may be carried, BLUE BOLT experience points up the value of carrying a spare radio as well, to insure reliability of communication. As the patrol will normally operate beyond effective range of the AN/PRC 8 radio, provision should be made to employ an airborne relay station. Such a station can consistently receive the signal from an AN/PRC 8 at surprisingly great ranges. However, because of the excellent FM signal reception obtained by an airborne radio, a frequency, clear of traffic, must be assigned the patrol operation. Otherwise, transmitters which are closer than the patrol to the aircraft will override and drown out the patrol's signals. Appreciation of this need for a clear channel was dearly paid for by the 1st Armored Division when vital information, gained by the deep reconnaissance patrols, was blocked off the air in an overloaded channel.

While it is SOP for all patrols to check out radios, the helicopter lifted patrol should also check in with the airborne relay station prior to departure. Vibration appears to affect adversely the calibration of AN/PRC 8's carried by L19 airplanes, and a frequent check of these radios is desirable.

Enemy activity may determine the frequency and duration of the patrol's transmissions. Therefore, the headquarters controlling the operation should maintain a continuous radio watch on the patrol frequency.

Final check of men and equipment prior to departure of reconnaissance patrol.

A final word on communications—if the mission justifies the airborne patrol effort, it justifies every conceivable aid to the communications aspect. A commander who is reluctant to provide the necessary clear channels and airborne relay station should reassess the value of the patrol.

Less definite conditions may be laid down for the helicopter-borne raiding detachment. While navigation, selection of landing sites and weight limitations are the same as for a reconnaissance patrol, the mission, target and terrain will greatly influence the composition, size, and equipment of the raiding party. The raiding patrol will have more fighting strength than a reconnaissance patrol and it will include a greater number of automatic weapons. Demolitions and special weapons will be carried as indicated by the patrol's mission. Generally speaking, within the limits of the cargo capacity of the helicopter, an air transported raiding patrol will be composed in the same fashion as a conventional ground patrol having the same mission.

Aerial resupply behind the enemy's lines will normally be conducted at night. If landing areas and guide light patterns have been coordinated in advance, this operation is easily executed. Radio contact between the helicopter and the ground party greatly facilitates the approach and landing. In addition, radio contact allows the ground party to obtain supplies at other than pre-selected points. In this operation the ground party is able to reconnoiter and select a suitable landing area free from vertical obstacles. If the patrol is to be picked up by helicopter it is well to select a field with approximately 200 yards clear space to allow a running take off. When fully loaded, the helicopter does not take off vertically, but rather employs a short forward "run" to gain speed and lift.

The helicopter patrol dismounts immediately after landing in enemy territory.

For the night landing of supplies so large an area is unnecessary, but a drop zone should be selected and marked so that the helicopter may descend at an angle rather than vertically. The narrow beam of a flashlight is not well suited to identify a landing area to a pilot. Where possible, small flares should be used to mark the area. A flare, made by igniting a c-ration can full of gasoline-soaked earth, is readily visible from the air although it is not easily seen from the ground when placed in a hole approximately a foot deep and two feet in diameter.

Use of the cargo helicopter to land small detachments to seize and hold critical defiles in front of an exploiting armored division appears to be tactically sound. Flank security and demolition details could be similarly transported. This was not attempted during Exercise BLUE BOLT due to the limited maneuver area.

In planning the vertical patrol the commander must balance the inherent drawbacks against the advantages offered. The time and effort needed for detailed planning and joint Pilot-Patrol leader reconnaissance must be weighed against the flexibility and depth of penetration afforded by the use of the helicopter. The cost, in terms of men and aircraft of a possible failure, must be offset by the anticipated value of the information to be gained or the expected success of a raiding mission. Is the ability to land fresh troops, bulky supplies, heavy weapons, radios and other special items of equipment in thinly defended hostile rear areas worth the diversion of the expensive aircraft from normal roles with the attendant risk of its destruction? If several vertical patrols have been carried out recently will the enemy now be waiting with itchy fingers for the next exhaust flare that flickers across the sky at night? Are we the only army that utilizes helicopters in the combat zone or does the enemy also employ rotary wing aircraft? Will his troops know that any helicopter is fair game?

However the commander reaches his decision to employ the vertical patrol, the following lessons learned during BLUE BOLT may serve to guide him:

1. The helicopter-borne operation cannot be hurriedly conceived and hastily executed.
2. Detailed prior planning, coordination and reconnaissance are the price of a successful mission.
3. Adequate communications must be established and tested prior to the patrol's departure.
4. Both the pilot and the patrol leader must know and understand each other's mission and requirements.
5. The patrol must be briefed and checked out no less minutely than is demanded in the case of a difficult ground patrol.
6. The mission, route, rallying point, resupply and communication procedures must be known and understood by each member of the patrol.
7. Sufficient time must be allowed for the briefing and checking of men and equipment

In summary, personnel in the 1st Armored Division believe that the cargo helicopter has opened a new field which should be exploited and developed by Armor. By use of the H19, we move our patrols into a third dimensional war on a small scale. We secure the advantages of speed and surprise. The commander can place fresh men and undamaged equipment far behind the hostile positions to reconnoiter, seize defiles, or wreak havoc in the path of our advancing columns. The field is wide open, the stakes are high and the sky's the limit!

CARDED

Leading the American Soldier

In 1946, when General Taylor was assigned as the Superintendent of the United States Military Academy, he addressed the First Class on Leadership. In order to emphasize the thoughts of our Chief of Staff on this important subject ARMOR is happy to present this lecture.

By GENERAL MAXWELL D. TAYLOR, Chief of Staff, United States Army

I HAVE set for myself a difficult task today in undertaking to discuss the leading of the American soldier with this much-lectured class. It is a subject which any officer should undertake with the greatest humility as no experience is broad enough, no wisdom is deep enough to provide the final word on such a subject. It is a subject particularly difficult to treat without falling into abstractions which are meaningless without the illumination of some past experience. Like so many other elements in our schooling, it is possible to appreciate fully the principles of leadership only after having bungled some of our early efforts in that field.

I think that the proper start for the discussion of the leadership of the American soldier is to consider what sort of fellow we have to deal with, to determine what are the characteristics which condition his use in war. At the outset, I should like to make clear that in my opinion we must distinguish between the two types of American soldiers, even at the risk of overstating the contrast. The first type is the Regular Army volunteer whom we met in the peacetime Army between World War I and World War II. His is the type which has always been present in our volunteer peacetime Army. The second type is the one of primary concern to us today, the drafted citizen soldier who came to arms, sometimes willingly, sometimes unwillingly, to meet the national emergency of war. Now, I am not sure whether the peacetime Regular Army will ever exist again as my contemporaries knew it. However, it is well to point out what sort of soldiers composed it. They were generally of two sorts—first, the old time non-commissioned officer who was as much a professional soldier as the Regular officers themselves. The typical NCO was a man of great simplicity of character, devoted to his officers and to the outfit in which he was spending his life. Such men were the guides and counsellors of the young lieutenants reporting to their first assignments. They watched over the professional development of their young officers whose subsequent careers they followed with interest and pride. They were extremely competent in the details of the military profession. They knew company administration, stable management, and Army regulations better than most officers. They relieved the unit commanders of the administrative burdens of their command and the routine problems of housekeeping. However, when war came they contributed comparatively little. In general, they were too old for field service so that most of them stayed in the Zone of the Interior as temporary officers in the military police or in one of the supply services. Their age and lack of physical condition required their elimination from combat units.

As for the enlisted men of this peacetime Army, those who did not become NCOs were usually not of a very high type. Without either the ability or the desire to become non-commissioned officers, they seldom spent more than one or two enlistments in the Army. The fact that they were willing to serve for little pay and with no promotion was ordinarily proof of lack of ambition and energy. Such soldiers added very little to the national military potential, doing little more than keep the lawns and hedges well trimmed on our Regular Army garrisons. From the point of view of leadership, these soldiers were docile and presented no particular difficulty beyond the need for occasional disciplinary action against those who got drunk or went AWOL. The service which they rendered was unimaginative and unenthusiastic.

Such Regular Army peacetime soldiers were in marked contrast to the type which we received when the war permitted the Army to draw on the entire nation for military manpower. While the strong words of the Duke of Wellington are not directly applicable, I might quote his comments on the relative character of the French conscript and the British Regular Army volunteers as suggesting the difference between our peacetime Regular volunteers and our wartime conscript. Wellington said in 1831, "The French system of conscription brings together a fair sample of all classes. Ours (that is, the British system) is composed of the scum of the earth—mere scum of the earth. It is always wonderful that we should be able to make so much out of them afterwards. The English soldiers are fellows who have all enlisted for drink—that is the plain fact, they have all enlisted for drink." These words could not be applied without offense to the personnel of our peacetime Regular Army, but they do emphasize the difference which conscription makes in bringing to the Army a cross-section of the entire nation. The best and the worst, the intelligent and the stupid, the loyal and the subversive—all find their way in war into the olive drab uniform of the Army and eventually stand before the officers of the Army as a challenge to their ability to produce effective leadership for the nation in arms.

Let us now consider the traits of these men who find themselves suddenly transplanted from civil life into the military service. In the first place, they are generally completely ignorant of the Army and are pretty sure that they will not like its ways. Many have grown up in areas traditionally hostile to the armed services; many come from families with pacifistic tendencies where they have been taught to view the Army and Army officers in particular, with deep suspicion. Almost to a man, they will bring the national characteristic of resentment to discipline and authority which, in my opinion, presents the greatest obstacle which we have to face in the creation of good troops from the American selectee.

One has only to read the daily papers or listen to the talk which goes on around him or in the halls of Congress to realize that Americans as a nation are innately critical of constituted authority. The average citizen is accustomed to freedom of speech and exercises it to the limit. He is accustomed to attacking his political leaders and sees no reason why the same methods should not be carried over to criticism of military leaders. Our pioneer forefathers who pushed the frontiers of the nation to the west were deeply individualistic and resisted restraint even to the point of lawlessness. This tradition of disregard for law is visible today in mass picketing, soldier demonstration, mob violence and, less dramatically but nonetheless typically, in the shower of pop bottles that falls around the unfortunate umpire at a baseball game.

FEW of our public or private enterprises escape this American attitude, this love of giving authority the "Bronx cheer." Certainly, the Army cannot expect or claim any immunity. As officers, we must recognize and expect this attitude in our wartime soldiers. It is a phenomenon which we cannot and probably should not want to change because, as I shall show you later, it is a necessary concomitant of the vigorous martial virtues which are also inherent in most of our citizens. While their insubordinate impulses create difficulties for the officers, our soldiers have compensating qualities of initiative, enthusiasm, and dash which more than make up for the headaches which result from their less desirable traits. But the critical tendency puts the officers to the test; they cannot expect the blind and uncritical obedience which characterized the old type German and Japanese military systems; they cannot expect to receive a respectful bearing by reading military gospel from a book. No institution is sacrosanct to your American soldiers; they will criticize all, and it behooves their officers to be on sound ground and to "know their stuff" if they expect to carry conviction. They must show the soldiers the why of things if they expect the latter to display the enthusiasm and the eagerness to learn of which they are capable. Remember the words which Von Steuben wrote back to Europe. "The genius of this American nation is not the least to be compared with that of the Prussians, Austrians or French. You say to your soldier, 'Do this' and he doeth it. But I am obliged to say, 'This is the reason why you ought to do that' and then he does it."

This, then, is a rough picture of the kind of soldier whom you will be required to lead in war. I will now try to point out some of the qualities which I believe an officer must develop if he is to lead such men successfully. I will say in advance that there is no unanimity as to what characteristics are most important in the formation of leaders. The classification which I shall use is my own and is susceptible to criticism. Nonetheless, I suggest that all the great leaders of the past and the present have been conspicuous for the following three qualities. First, they have been devoted to the welfare of their troops. Next, they have been richly endowed with human understanding. And finally, they have stood out by their professional competence and ability. Now let me expand briefly on each one of these characteristics.

The citizen soldier in war finds himself in a strange environment. He is torn from his family and his friends and thrown among strangers. Surrounded by strange institutions and customs, he feels vaguely threatened by the unfamiliar present and, even more, by the uncertain future. His conception of war and of battle have been distorted by false literature, abetted by Hollywood which has given him a "What Price Glory" idea of military life. He suffers from the absence of a standard of values to guide him in this new world in which he finds himself. At such a time, the soldier needs to look to someone in whom he has confidence, someone who will build up in him the feeling that he is a protected human entity. That someone must be his commanding officer. We find in the G.I. gripes the recurring note that certain officers did not look after their men; they thought of themselves first and placed the requirements of their troops in the background. In the great wartime officer corps of 800,000 in which the Regular officers were a significant minority, there were many who failed in their responsibility to their men. Such officers are responsible for the regrettable state of our officer-soldier relations following the war. They are the antithesis of what you gentlemen should want to be. If you read the pages of history with reflection, you find that no man ever rose to military greatness who did not succeed in convincing his troops that he put them first, above all else.

Few leaders in all history have had the whole-hearted support of their men to the extent that the Army of Northern Virginia was devoted to their commander, Robert E. Lee. While much of this support can be attributed to the professional qualities of General Lee, a large measure of his success was due to the fact that the Army of Northern Virginia knew that General Lee did his best to provide for their welfare. He was loyal to them, and they were loyal to him. When he ordered them to dig entrenchments, a work which they always hated, they knew that the work was necessary and was done to protect their lives. They knew when he ordered them into battle that he had wisely planned so that they could succeed with minimum losses. Soldiers were not cannon fodder to General Lee;—they were comrades associated in the common enterprise of defeating the enemy and serving a cause to which they were all devoted. Furthermore, his soldiers saw that this comradeship was no mere lip service, for General Lee lived just as simply as they did; his table was no better than theirs, and often worse. When friends sent him chickens, eggs, and other delicacies, General Lee would send them to the hospital, feeling that the wounded, more than he and his staff, deserved these small luxuries.

Washington was like Lee in his devotion to his men. He, the aristocrat accustomed to a life of relative luxury, set a personal example in bearing the vicissitudes of fortune at Valley Forge, an example which produced around him a loyal group that was the nucleus of the force that made the gallant fight at Trenton and changed the whole fortune of war in our favor. His constant effort to better the condition of his troops was known to them and was an important factor in developing the Army into a potent military weapon.

THE work of impressing upon the soldier the fact that his officers are interested in his welfare should start from the first day when he joins his unit and be continuous thereafter. The recruit is particularly susceptible to the right sort of treatment. He usually arrives through the replacement system after a very unhappy period of weeks or months. He has been exposed to all manner of inconveniences and annoyances; he has been shoved about with no one to whom he can look for sympathy. He has come from what the soldiers call contemptuously the "repple depples" where he has often been commanded by officers assigned to the replacement service because of lack of ability to command in combat. By the time he reaches his first regiment, he is likely to be disgruntled by this treatment which he has received along the line. That is the moment which the alert commander will seize to convince the recruit that all this has been changed, that he now has a home which is the unit which he has just joined. He must be taught the history of that unit and be shown that it is one with a distinguished record of service to which it is an honor to belong. The note should be, "You are joining a proved outfit that is glad to have you. It will look after you, but you must look after the reputation of the outfit. Its past history has been paid for by the blood of the killed and wounded; it is up to you to live up to the record which these men have made at such a price." But this talk will not be convincing unless, when the recruit reaches his company or battery, he finds that it is really a happy organization. The old soldiers will be quick to tell him whether the commander looks after his men or not. What you should hope that your recruits will hear is that the "Old Man" is always on the job, that he sees that the rations come up in time, that the mail is never delayed, that he is always looking for a new rest center where the men can be relieved from some of the tedium of life in a theater of war. If your recruit learns this from the old timers, you will have no trouble in filling the vacancies in your ranks with loyal and effective replacements.

ONE aspect of caring for troops is to see that they are not exposed to unnecessary hardships. The successful leader, by intelligent planning, will avoid the march which must be followed by a counter-march; by his professional skill, he will choose dispositions which will spare his men unnecessary hardships and losses. Sherman convinced his men of his concern for their welfare by the thoroughness with which he trained them and by the consideration which he showed for them in campaign. The men soon learned that the extreme marches he required really saved them needless casualties. They noted how he marched his troops at night to spare them the burning sun of day. He himself rode in the fields beside the marching columns to avoid crowding the men off the road. This is the reverse of the picture which I saw all too frequently overseas where thoughtless officers raced their jeeps past marching troops and splattered them with mud. The deep cursing which such officers caused in the ranks was a fitting commentary on this display of negative leadership.

No leader worth his salt will fail to feel and show his sincere sorrow for the dead and his sympathy for the wounded. Julius Caesar, after one military disaster where he had lost many troops, allowed his beard and hair to grow and vowed he would not cut them until his soldiers had avenged their comrades' death. In the intervals of fighting, Stonewall Jackson was always seen in his field hospitals, visiting the sick and wounded. Soldiers cannot be allowed to think that they are scratched off the list and forgotten when the fortunes of battle lay them low.

All that I have been saying about devotion to the troops sums up to this. The badge of rank which an officer wears on his coat is really a symbol of servitude—servitude to his men. The privileges which he receives from his rank, the fact that an orderly pitches his tent, that a soldier digs his foxhole, that someone prepares and serves his food—all of these privileges go to the officer, not for any intrinsic personal merit but because the officer is entitled to more time and leisure for thought and preparation in serving his troops. If his behavior shows that in all things the enlisted man comes first, he will receive loyal uncomplaining service from his men, without the grumbling and "bitching" which are the merited lot of the selfish officer.

I would mention as the second attribute of the successful leader the gift of human understanding, the ability to treat men with understanding as individuals and not as army serial numbers. American troops in particular resent any suggestion that they are without individuality, that they are ciphers and not people. They want to be known for themselves and will resist any effort to mold them into an anonymous pattern. All great soldiers have succeeded in convincing their men that they know and respect them as individuals. To accomplish this, they go among their men freely, mingling with them and giving the soldiers a chance to look them over and size them up. The officer who barricades himself behind his rank is properly suspected of having weaknesses to conceal—probably more than he really has. The successful commander claims no infallibility, and is not afraid to expose himself to close view. Instead, he is often seen among his men; he learns their surnames and calls them by name at every opportunity. It is said of Caesar that he never lacked a pleasant word for his soldiers. He remembered the face of anyone who had done a gallant deed, and when not in the presence of the enemy encouraged amusements in which he frequently joined. Such little human acts as these inspired his legionaires with a devotion which went far to account for his success as a great captain.

Another subtle approach to the affection of your men is an interest in their families. Ask your soldier about his wife and children—he will be delighted to tell you his life story and is greatly flattered by the interest which his commander shows. If you write an occasional letter to a member of his family—to his father, for example, describing the good work which the son is doing in the Army—your act will reverberate throughout the entire command and you will have made a life-long friend of the soldier in question.

AN officer shows understanding of the type we are discussing if he goes out of his way to explain the need of his orders and the reason for the actions required of his men. During the last war, most successful generals went to great pains in explaining their detailed plans in advance of asking troops to execute them. You recall that General Montgomery, in the battle of El Alemain, ordered that every man in the Eighth Army be told the plan of attack. In our American landings in North Africa, in Sicily, at Salerno and in Normandy, commanders were most careful to brief their men thoroughly on what to expect and why. This explaining of why to the troops goes beyond the need for an explanation of individual battles or campaigns; it should cover the entire question of why we are fighting. Nothing keeps a man going in war like a strong belief in his cause. We need only recall the fervor which sustained the Southern states in our Civil War. It was the Confederate soldier's love of his cause that kept him going for four long years when he was poorly equipped, seldom fed, and nearly always fighting against odds. It was only when a similar spirit became common amongst the armies of the North that the tide of victory swung to their side.

I think that this discussion of the need of human understanding can be summed up by saying that it is the exercise of common sense in human relations. There are times to be stern; there are times to be lenient. There are times to be exacting; there are times to be tolerant. This feeling for the right course of action to be taken with men is instinctive in some officers and often lacking in others, but it can be cultivated and developed by all. I recommend that you observe the behavior of senior officers whom you respect and who are obviously successful with soldiers. Model yourself upon them as you, too, will some day be a model to those who follow you.

THE last of the trio of virtues of the successful leader is personal, professional competence. The leader must know his business, and the men must know that he knows. War is a terribly serious business, and our citizen soldiers want their lives protected by experts. They may tend to belittle the Regular Army in times of peace; but, when war comes, our citizens want to feel that their lives and fortunes are in the hands of professionals. It becomes your duty as Regular officers to devote your lives to providing this professional leadership. The members of every generation of graduates of West Point have at least once in their career known the crisis of war when they were called upon to justify the years which they had spent in the Army. As future officers, you gentlemen must have constantly with you the feeling of preparing to run a great race where the stakes will be the lives of your men, your personal fortunes, and even the future of the nation. If you make your peacetime career visibly one of constant self-improvement, you will of necessity impress your soldiers with your professional competence. The training of your troops will be realistic; the plans which you draw will be sound; it will be clear to all that you know your job.

Professional competence is more than a display of book knowledge or of the results of military schooling. It requires the display of qualities of character which reflect inner strength and justified confidence in one's self. To give an impression of strength, an officer must consider his personal appearance, his physical condition, his tone of voice, his method of life—all of which give an impression of his character to the soldier. This does not mean the development of an artificial personality. All of us have certain traits which were given us at birth. We all have a core of personality that cannot be tampered with but can be constantly developed. A facade of sham will not serve. If you would have your troops believe that you are strong, you must be strong. If you would teach them to be rugged, you must avoid a soft life yourself. If you would have your men be brave, you must yourself be an example of valor.

To bring the full force of his character to bear effectively upon his men, an officer must resort to every device of personal leadership. I know that some military thinkers say that the day is past in modern war when the leader can place himself in front of his men and inspire them in action in the tradition of Civil War brigadiers who charged on foot at the head of their men. I do not believe this for one moment. Personal leadership is still possible within limits, and it should be supplied by every commander. General Doolittle electrified a discouraged Allied world by his personal leadership when he flew his B-25 off the flight deck of the *Hornet*. General Patton was a model to his subordinate officers and men by his personal intervention on the battlefield. There was no point of the front where he, an Army commander, did not go and show himself to his troops. He condemned with passionate fierceness the type of commander who stays in the command post and does not visit the troops. For such commanders, he was a terror incarnate; and they would flee at the word of his approach to avoid the blistering criticism that would fall upon them if they were caught in rear of their front line. One particularly delightful story about General Patton was told to me by one of his most energetic Corps Commanders. After the crossing of the Rhine, the Third Army was driving deep into Southern Germany, and this particular Corps had gone well out in advance of the rest of the Army front. General Patton came up, by the one road which was intermittently open, to visit the Corps Commander. The latter by this time was getting a bit jittery at his exposed position. He pointed out that by General Patton's own G2, there were 60,000 Germans on one flank and 80,000 more on another. "And here," said the Corps Commander, pointing it out to General Patton, "here is my advance guard, out two days' march in front of the Army." General Patton looked at the big red circles marking the German concentrations on either flank of the Corps and said, "Just ignore those bastards. Go ahead." His presence at the critical point provided the needed impetus to keep the momentum of the Army rolling forward.

The vastness of General Eisenhower's responsibilities in Europe did not prevent his giving personal leadership to his troops. Although the size of his command made his visits infrequent at any given point, nevertheless, when he did come around, he knew how to get among the troops, and chat with the individual men, so that they had the feeling of knowing General Eisenhower personally. They received a vivid impression of the solidness, the professional efficiency, and the high character which are his outstanding attributes; and as a result they went cheerfully and willingly into the dangers which his campaigns entailed.

I have now discussed at some length the three qualities which all successful leaders have had—devotion to the troops, human understanding and professional competence. What are the rewards which fall to the officer who combines felicitously these three attributes?

FIRST and foremost, he can expect to get the best out of his troops, and American troops at their best are without equal. No foreign army can compare with ours when the latter is properly led. The American soldiers have courage, physical vigor, initiative, and dash—all of these are rich talents which they bring and place in the hands of the commander who knows how to unify them with the catalyst of true discipline. By true discipline, I mean that willing and cheerful subordination of the individual to the success of the team which is the Army. Do not confuse this kind of discipline with the external appearances of traditional discipline: the salute, the knock on the orderly room door, the formulae of deference to superiors—in short, military courtesy as it is rigidly prescribed in our field manuals. The latter all have their place, particularly in the peacetime Army; but they are not the indices of the discipline which really counts. The Army of Northern Virginia would have rated very low in military discipline in the restricted sense. It would never have won "first line" at a West Point parade, but by its spirit it has won a rank among the great fighting units of all times, alongside of Xenophon's Ten Thousand, Caesar's Tenth Legion, and Napoleon's Old Guard. American troops with their natural qualities plus discipline are irresistible.

HAVING achieved true discipline among his men, the successful commander will be victorious in battle. Victory feeds upon itself and soon creates the feeling of invincibility and pride of organization which, together, magnify the intrinsic strength of the command manyfold. Your troubles are at an end when the threat of dismissing a man from your company or regiment becomes a punishment more dreaded than court-martial. You need feel no concern when your soldiers brawl in taverns to prove that they "belong to the best damned outfit in the Army." Such a spirit may cause you some headaches with the Military Police, but you need have no fear for your military reputation with such men on your side. The great Divisions of all of our wars have had this spirit which accounted in a large measure for their success. I know of no finer example than that of the 1st Division in World War I. That Division suffered 7,000 casualties between the 4th and 11th of October, 1918. They came out of the line expecting a month's rest, but instead were ordered quickly into the Meuse-Argonne battle. On the 29th of October, the Division Commander delivered the following message, "Memorandum for Members of the 1st Division: It will be well for us to bear in mind at all times, especially on the eve of active operations, (1) That we were the first assault division of the AEF; (2) That we have on four battlefields always taken all objectives assigned us; (3) That we have gone through the best German divisions for a total of 30 kilometers and have never abandoned an inch of ground to the enemy; (4) That for every prisoner, we have taken over a hundred Germans; (5) That the above record has been due to the pride and spirit of each individual member of the Division."

I wonder whether I have painted too dark a picture of the life of the professional officer, as though his career were only one of vexatious responsibilities. Must we expect only recriminations and no reward? If I have painted such a picture, I have been wrong. As for all duty well done, the rewards that come to the successful commander are rich, indeed. American troops, led in the spirit which I have described to you, will bring fame and honor to the officer who has known how to use their talents; they will put stars on his shoulders and ribbons on his chest and make his name live in the pages of history. And beyond these material rewards, to have commanded troops who have rendered such conspicuous services to the nation will bring to the officer an abiding sense of accomplishment, in having brought to the bloody business of war its redeeming virtues of human loyalty and the fraternal devotion which bind fighting men together —officers and men alike—in mutual respect.

CARDED

Training The Lone Star Division

By CORPORAL ALSTON A. MORGAN

There are five National Guard Armored Divisions. Two of these, the 49th and 50th, have existed since 1946. This article, on the 49th Armored Division, will materially assist newly converted units in conducting their Summer training and their year-round Armory training.

THE backbone of every American mobilization has been the nation's units of citizen soldiers. In an age of nuclear weapons and sudden devastating attack, the mission of the National Guard assumes added significance. It is the first line reserve of the armed forces of the nation, and more than 400,000 officers and men of its 5,674 units throughout the country contribute freely of their time and military skill in continually bringing their units closer to the ideal of preparedness to take the field at a moment's notice.

Familiar developments have recently focused attention on the armored elements of the National Guard, and to the two armored divisions that have existed since 1946, three have been added and a fourth is in process of being converted at the present time, all conversions from National Guard infantry divisions.

9,000 Texans of the 49th Armored Division are "old hands" at the business of tanks, armored personnel carriers, self-propelled artillery, and the thousand and one special problems involved in working, moving and fighting the 3,383 vehicles and items of motorized equipment which constitute the modern armored division.

Nicknamed the "Lone Star Division" by its members, the 49th Armored Division is commanded by Major General Albert Sidney Johnson of Dallas, who served with the 6th Armored Division, II Armored Corps, and with the War Department's CBI staff in World War II.

Yearly the division trains thousands of young Texans in the basic and advanced principles involved in wielding the Combat Arm of Decision, the modern armored division. Most of its officers and substantial numbers of its enlisted men are combat veterans of every theater of war during World War II and the Korean emergency. Skills learned on active duty are supplemented and kept up to date by a comprehensive officer and enlisted school program, and instruction within the division is kept at professional military level.

Normal training is carried out during weekly armory drills and additional weekend drills and exercises throughout the training year. During the summer months the entire division moves to North Fort Hood, Texas, for a two-week period of intensive training on the ranges and tactical training terrain available at this number one armored training site of the nation.

Field training this year commenced on 19 June. Several days prior to this date, however, advance detachments were at the field training site preparing to receive the main body of the division. During this period mess personnel of the division attended a Fourth Army Pre-Camp Mess School operated at North Fort Hood.

Main body movement to camp was an integral part of the field training program. Motor convoy movements were carefully planned at all levels of command; units whose home armories were distant from North Fort Hood began their movements on 18 June, bivouacking en route. Subordinate company and battalion elements of larger commands joined columns as they passed through their own home areas; column control was effected by radio, and planes of the division Aviation Section were utilized to check movements. A tight schedule for closing at North Fort Hood had been furnished commanders. A system of check points manned by the 149th Military Police Company were a great help. Units arrived in orderly succession at the field training site and began the work of establish-

There were no accidents in the march to or from Hood by 49th Division units.

CORPORAL ALSTON A. MORGAN served in the 49th Armored Division. He enlisted in the Regular Army in 1953 and attended the Armed Forces Information School. He is the Enlisted Section Chief, III Corps Public Information Office, Fort Hood. The Army Signal photos were taken by the author and Sergeant J. W. Treadway, Post Signal Laboratory, Fort Hood.

ing their two-week homes. Not an accident or serious infraction of march discipline had marred the movement to camp, nor would it do so on the return movement to home stations at end of the period, planned and carried out in the same manner.

For some members of the Lone Star Division field training was a new experience. For others it was just another year at the old training site whose oak covered hills and grassy valleys have become familiar through the years. For some of last year's privates the two weeks presented a problem of living up to the responsibilities of new stripes. A number of last year's squad leaders and tank commanders wore new gold bars and stood at the head of platoons.

For all it was the sacrifice of a vacation or time from civilian pursuits, gladly made by men who carry on the ancient tradition of the free citizen soldier.

Working with the Texas Guardsmen upon their arrival at camp were Regular Army elements of III Corps, and the 1st and 4th Armored Divisions, stationed at Fort Hood, commanded by Major General Harrold. While the Texas National Guard armored division is issued all equipment in adequate quantities for carrying on its armory training program, supplementary vehicle loans are normally made for summer training from active Army units at Fort Hood. Details of these temporary transfers are handled by a unit of the Army to which is assigned the mission of support of the National Guard division on the post. In addition, post, camp and station property is issued through the Regular Army unit to completely set up the campsite.

Lieutenant Colonel John B. Hearne, G4 of the Texas division, stated during these transfers, "We are a self-sufficient organization, and we have our own tanks and other vehicles. Transporting armored track-laying vehicles, however, is tremendously costly. Through cooperation and support of the Regular Army units at Fort Hood we are able to leave these at home station, drawing vehicles for camp training from our own vehicle concentration site at North Fort Hood and borrowing from the regular Fort Hood units. This year we are being supported by the 4th Armored Division, and the details are being handled by the 195th AAA AW Bn. We're getting the same cooperation and friendly assistance from these people that we've become accustomed to in the years we've been coming to North Fort Hood. Our training will be carried out with all the equipment we need."

The Texas National Guard maintains a permanent concentration site at North Fort Hood for both wheeled and track-laying vehicles. Here are kept vehicles and other bulky items of equipment not required during the year for training at unit armories. These items are convenient for use during the field training period.

The first half-day at North Fort Hood is devoted by the division to commander's time and utilized for setting up camp, establishing communications, making range and training area reconnaissance, and otherwise getting ready for the sustained effort that doesn't let up for the balance of the two-week period. Vehicles are checked out by their crews; unit headquarters go into operation; company areas are policed, and men attending their first camp are initiated into the art of maintaining quarters and living in a military encampment.

Usual procedure was followed this year in the Lone Star Division, and men who had not completed record firing at home stations spent most of the first week on the excellent ranges of North Fort Hood. Armored infantrymen, armored engineers and others whose basic weapon is the rifle or carbine fired on known distance ranges. Tankers of the four tank battalions of the division spent the first half of the week on the subcaliber tank ranges and the last half firing service shot and high explosive ammunition from the cannon of the M41 and M48 tanks of the division.

Mortar and machine gun squads fired their weapons, and selected men fired the rocket launcher, recoilless rifle and .50 caliber machine gun. Busy fighting vehicle crewmen took time from their primary ranges to fire the pistol and sub-machine gun.

At the same time the newest recruits of the division, those who had not received basic training at home station, were separated into separate detachments and under control of combat command, division artillery and division trains, commanders underwent a rigorous period of recruit instruction which ended on the known distance range on the last day of the first week.

Men who had completed firing were trained in other phases of the Army Training Program. Numerous specialist schools, operated during the week, brushed up or taught outright the diverse skills necessary in the operation of the armored division.

By drawing equipment from Hood units, costly moving of vehicles was avoided.

Subcaliber firing was completed prior to firing Shot and HE service ammunition.

Following a tour of the encampment training area during this first week, Major General Samuel T. Williams, Fourth Army commander, stated before a press conference, "This division has been here only a few days and apparently has settled quickly. It's going about its business in a good professional manner. I'm sure General Johnson will have a better camp this year than last."

Climax of the first week of training was the "Governor's Review" and parade held on the first Saturday of camp. Conforming to tradition, North Fort Hood was the rendezvous on this day for hundreds of friends, relatives and local and state dignitaries, all gathered to see the division display its armored might and to visit the Guardsmen. General Williams visited the division again on this day. Governor Allan Shivers, arriving by helicopter, reviewed the troops and was honor guest of the division for the occasion.

The second week of camp was given over to tactical training of the combat and service elements of the division combined with a tactical bivouac which took the entire division into the field for four days.

Most spectacular of all training was the operation of North Fort Hood's famous "Tank-Infantry Combat Course," with its "built-in tactics" for the training of a combined arms team made up of a tank platoon, reinforced by an armored infantry platoon and mortar platoon, and supported by indirect fire of the division field artillery. This year the usual exercise run on the course was modified to introduce the element of helicopter borne infantry. Through cooperation and support of the 1st Combat Aviation Company of the 1st Armored Division, fighting platoon members of the Texas division saw demonstrated the versatility of the armored soldier and the great range of tactical combinations with which armor may accomplish its mission.

Tank crews ran the Individual Tank Course in which a single tank crew is required to react rapidly to a series of situations which present themselves, each of which requires a quick decision by the tank commander and prompt fire of appropriate tank weapons.

Similar exercises adapted to reconnaissance elements of the division were run on the Reconnaissance Platoon Combat Course, and armored infantry trained on the Squad Attack and Assault Course.

During the week the four battalions of the division's armored field artillery conducted service firing on the field artillery ranges of the post. The 649th AAA AW Battalion practiced firing at radio controlled antiaircraft targets.

Nowhere in the nation do armored tactical training facilities exist superior to those at Fort Hood, and during this week of training General Johnson, 49th Armored Division commander, stated, "We are fortunate to have the use of these well-conceived and splendidly designed facilities for our tactical training. They come as near to combat realism as

Excellent ranges at Hood afforded the opportunity to fire service ammunition.

possible under training conditions. They give the tankers, armored infantrymen and others of our division a realistic demonstration and excellent practice in the operation of the combined arms team with which we fight. We are particularly fortunate to be on the same post with armored divisions of the Regular Army and to have the benefit of their specialized training knowledge and experience."

With the entire division in the field during this second week, all headquarters elements participated in a command post exercise, using as a vehicle for this training an expansion of "Clover Leaf I," the CPX held under Fourth Army auspices in the latter part of 1954 and in which the 49th Armored Division headquarters had participated.

The division bivouac was a tactical one, featuring the logical placement of command and service elements of all units, maintenance of a high state of camouflage and blackout discipline, and the use of Aggressor forces during hours of darkness. Imposition of a simulated CBR situation gave training in meeting this threat of modern warfare.

Maintenance is not neglected on borrowed equipment during the encampment.

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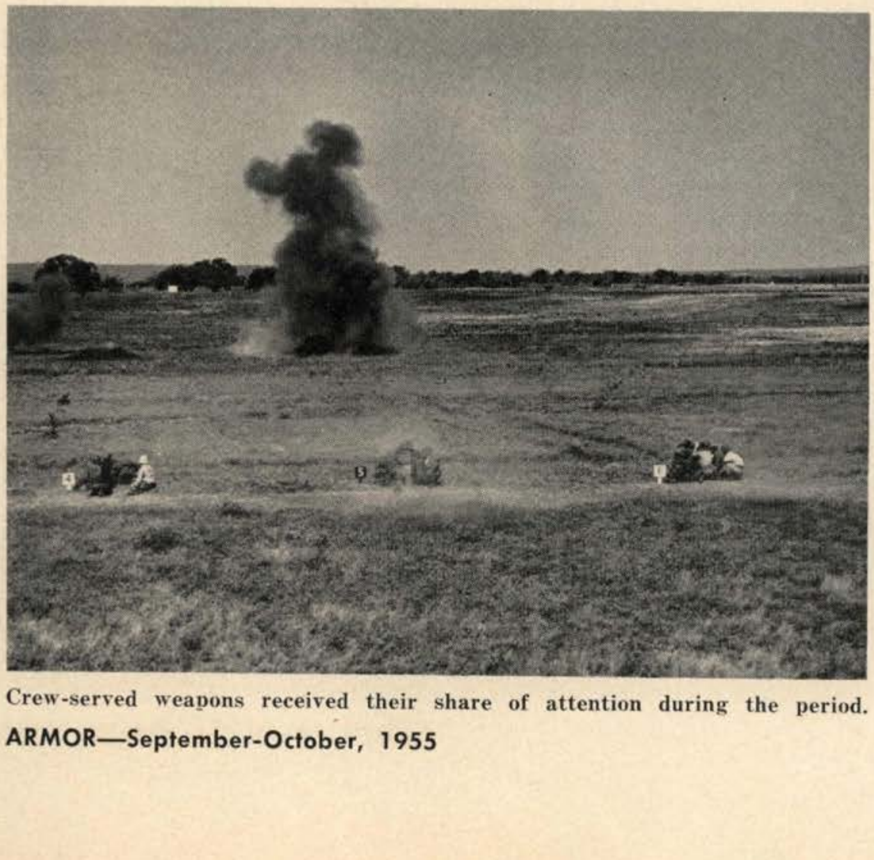
Field training for the division ended on 3 July; with the arrival of its last elements back at home stations the division record for another camp was assessed. It was the best training year to date. There were no fatalities and no serious accidents in movement to and from camp or in two weeks of training which featured the use of hundreds of vehicles in day and night movement over rugged terrain and the firing of weapons of all calibers on every type of range. The sick and injury rate was low and there had not been a single instance in which serious disciplinary action had been required. Movement to home stations had been orderly, and clearance of North Fort Hood had again been accomplished with the close and friendly cooperation of Fort Hood active Army elements. At home stations a new armory training year could begin.

Men of the Texas division have a great deal to live up to as members of their units. While the division is one of the newer National Guard divisions, its battalions and separate companies have a distinguished past. Its 113 units are located in 55 Texas cities. Most of its organizations stem from units organized in 1861 to carry the Lone Star flag of Texas beside the banner of the Confederacy through nearly all major campaigns of the War Between the States. Appropriately, most of these early commands were cavalry, and it was during this war that Texans first learned the lesson now applied by armored infantry with its carriers that a mounted soldier increases enormously his ability to perform his mission by developing the capacity to dismount to fight and remount rapidly to move.

Successively reorganized as concepts of military organization were altered, parent units of the division participated in all succeeding wars in which the nation engaged. They saw action in World War I, some of them as infantry elements of the old


Crew-served weapons received their share of attention during the period.

72nd Infantry Brigade, others as part of the 133rd Field Artillery Regiment. Her units brought home on their colors the names of World War II campaigns in both the Pacific and Europe. Inactivated for a brief time after World War II, while the effort was being organized to create the 49th Armored Division, they were brought to life again, and in 1946 veteran officers and men of the Texas National Guard were well begun on the old familiar task of bringing distinguished units to new life, this time as component parts of an armored division.

The division is organized under the same tables of organization as her sister armored divisions of the active Army except on reduced strength. While organizational and training emphasis within the division is placed at the fighting platoon and company level, the division as a whole is fortunate in having battle trained commanders and staffs at each level of command. Many of these were pre-World War II members of the Texas National Guard and have participated in the organization and training of the 49th Armored Division with that special dedication which is characteristic of those who have faith in the National Guard system of reserve training and in the citizen soldier as the nation's proper reliance in time of emergency.

Training within the division is based on a National Guard Training Guide published by CONARC and a Fourth Army Training Procedure Guide expanding these directives. Training methods are those employed by the active Army, and training follows that outlined in appropriate Army Training Programs. Training at all levels is carried on under the eyes of officer advisors detailed from the Army to assist the National Guard commanders and to represent Federal interests in the preparation of training schedules and handling the administrative details pertaining to property and funds.

While Guardsmen are normally paid for 48 annual armory drills and one 15 day tour of summer field training, the practice of holding additional weekend exercises at home station throughout the training year prevails in nearly all units of the division. These additional periods have been only partly supported by the provision of additional funds, and many are held without pay for the Guardsmen involved. These weekend, daylight training exercises are considered an indispensable feature of training with the division for range firing, armored vehicle driver training, and tactical training of companies and battalions.

Units of the division are housed in local unit armories of varying types, and within the division a contrasting picture is presented between the single unit armory of the small town unit and the multiple unit types in the larger cities, where entire battalions and numerous smaller units are housed and trained in close proximity.

Officers of the division unreservedly attribute its professional competence to its service trained officers and noncommissioned officers backed by a continuing program of Army service school attendance. A comparative innovation of post-World War II, the service school program of the active Army is open to all Guardsmen who can arrange to attend, and 49th Armored Division personnel are in attendance at them at all times. Through cooperation from the active Army and school heads, the problem of the citizen soldier who is unable to arrange time for attendance at a long course is met by special two-week refresher courses held annually at major service schools.

Specialist personnel, both commissioned and enlisted, are trained at Army service schools and area schools operated under Fourth Army. Recently a program was initiated under which recruits of the division may be sent to an active Army training center for eight weeks of basic training. Quotas for this training have been filled consistently within the division.

Unit schools are conducted at all levels, those for battalion and higher staffs being supported in part by Federal funds. Unit schools in methods of instruction are annual features of training throughout the division. Especially successful division schools were held in the last half of Fiscal Year 1955 in subjects of communications and methods of instruction, featuring Fourth Army supported instruction at several points within the state and weekend attendance by large numbers of officers and key enlisted personnel from the division.

The entire school program of the division, especially that portion of it involving Army service schools, receives the widest publicity throughout the division, and continued command emphasis is placed on this method of training. Information on available schools and other activities is also furnished to each individual through the division monthly newspaper.

Personnel unable to attend service school by reason of restrictive civilian employment are encouraged to take extension course training, and division officers are required to maintain the military educational level appropriate to their assignment and grade either by service school attendance or by successful completion of extension courses.

Emphasis on staff training within the 49th Armored Division led to an expansion of Command Post Exercise "Clover Leaf I," originally held in December 1954 as a Fourth Army exercise for division level training and attended by the Division Commander, Assistant Division Commander, Division Artillery Commander, Chief of Staff, and a large number of the general and special staff of the Division. During the spring months of 1955 a series of CPXs were held within the division, in which combat command staffs and battalion staffs were brought into the problem. This was continued during field training, and "Clover Leaf I" has now attained the status of a continuing reality and vehicle for this type of training throughout the entire 49th Armored Division.

Like all National Guard divisions, the 49th Armored Division has a dual status as a peacetime state force with the mission of providing quickly available troops to aid local authorities in event of emergency or disaster. Since reactivation after World War II division units have participated as state forces in not less than nine instances of explosion, storm and flood involving loss of property and life and breakdown of local capacity to cope with the disaster. Texas Guardsmen take pride in her military and peacetime past, and the men of the 49th Armored Division stand ready to meet any requirement made of them whether in peace or in war.

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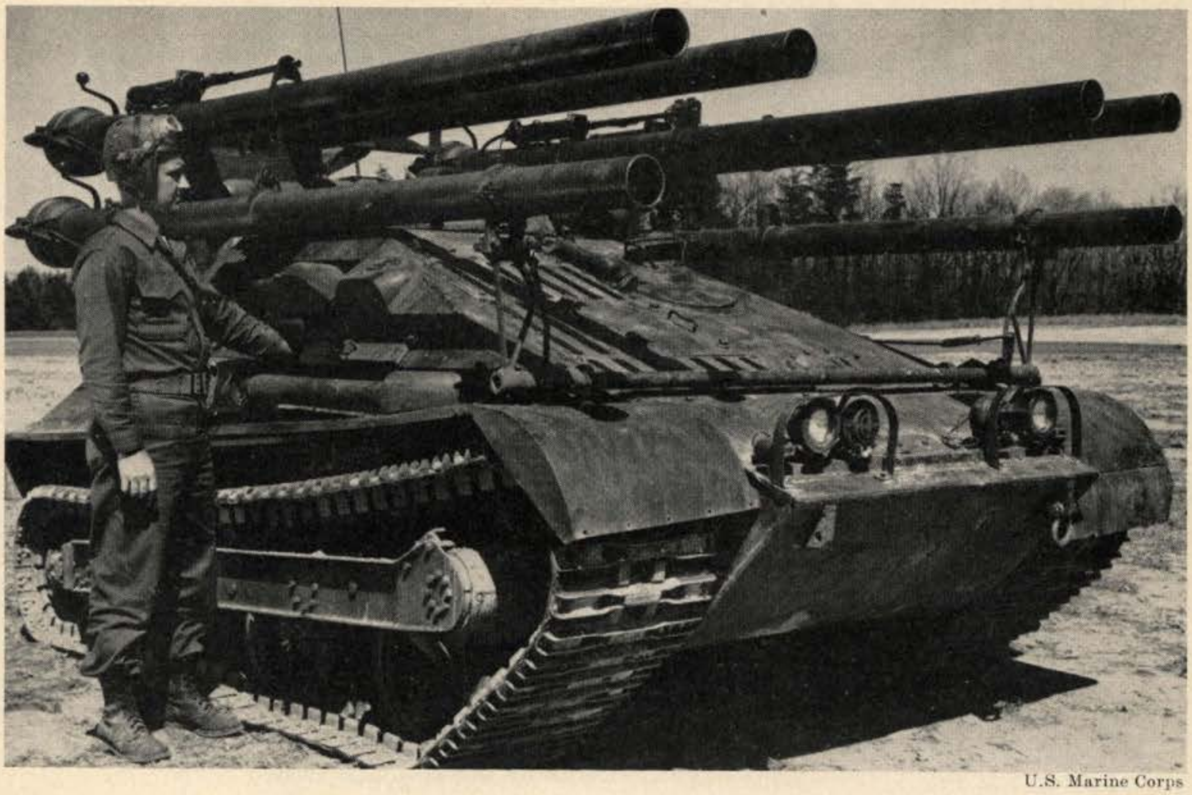

U.S. Marine Corps

THE ONTOS

In a joint announcement, made recently by the Department of the Army and the Marine Corps, the Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin has been awarded an Army Ordnance contract for approximately $13,000,000 covering production of a new armored vehicle called "Ontos," which translated from Greek means "The Thing."

The vehicles are being procured for the Marine Corps.

ONTOS was developed by the Allis-Chalmers company for Army Ordnance according to specifications based on a new concept in armored warfare. It carries six 106mm recoilless rifles. Instead of heavy protective armor it depends on the speed with which its rifles can be trained on target and its high maneuverability. Because of these characteristics it has been called a "hit-and-run" weapon.

The Marine Corps feels that the weapon fills their needs during the early stages of an amphibious operation. They claim it can be employed until tanks can be unloaded, thus giving greater antitank protection to the initial landing forces.

Like the BAT, announced some months ago by Army Ordnance, ONTOS carries caliber .50 spotting rifles. Coming within range of the target, spotting rifles are employed to range on the target in order to insure accuracy of fire of the 106mm recoilless rifles. If necessary to assure a kill, all six may be fired.

Officially designated "Rifle, multiple, 106mm, self-propelled, M50," the new weapon is an 8.5-ton, full tracklaying, front sprocket driven vehicle. Two of its six rifles may be demounted for ground use. It also carries four caliber .50 spotting rifles and one caliber .30 machine gun. A crew of three men man the vehicle.

The six major caliber weapons may be fired independently, in salvos of two (step firing), or in a salvo of six from the gunner's position inside the vehicle. Either the major or minor weapons may be fired by either a foot pedal or a hand trigger.

The vehicle is powered by a General Motors 145 horsepower engine, the same as that used in the two and a half ton Army truck. Speed is in the middle range, and climbing ability excellent since ONTOS will climb a 60 per cent grade or crawl over a low vertical wall with equal ease.

On Army Aviation

Recently, much has been written, both pro and con, about Army Aviation. A definitive statement, prepared by Brigadier General Hamilton H. Howze, Chief, Army Aviation Division, G3, Department of the Army, was released at the National Aircraft Show. The show was held in Philadelphia, Pennsylvania during this past Labor Day weekend. In keeping with our editorial policy—to provoke thought and stimulate interest—ARMOR is happy to present this statement to its readers.

In this era of rapid scientific development, an era which has no parallel in history, the military planner is faced with terribly difficult problems. His effort to solve these problems is complicated by the many variables and unknowns which are part of them; what's more, his solutions cannot be proved or disproved mathematically, and are therefore subject to vehement disagreement and denunciation by his fellow professionals and by the non-military citizen as well. And then the planner is always haunted by the possibly grave consequences of pursuing the wrong line of endeavor, of failing to see in true perspective the impact of science and technology on the conduct of battle.

But in the military future—always a pretty obscure area—certain facts stand out clearly. One of these is that military forces can no longer afford to concentrate in small areas for long periods of time, for fear of annihilation by the so-called "area weapons." A second is that guided missiles of all types, short and long range, will have increasing effect on our tactics and technique. And a third factor is that aircraft have developed to the point that their integration into *small unit tactics* is not only possible but essential to the successful prosecution of the land battle.

Combat operations of the next war are expected to be characterized by great fluidity and increased dispersion, with units operating over large areas, both laterally and in depth. The battlefield envisaged will have large unoccupied patches in it, and an intermixture of units, friendly and hostile, is to be expected; the clear definition of friendly and hostile territory by a well-defined "front" may no longer obtain.

* * *

What is the role of the Army airplane in such a battle?

For years the Army has operated, with outstanding success in combat, light observation aircraft to locate targets for artillery and to adjust its fire on them, to study the terrain, and to obtain information on enemy forces not otherwise obtainable by our friends in the Air Force. It is easy to imagine how vital will be the function of observation in new, rapidly moving warfare. Its efficiency can spell the difference between success and failure.

The troop carrying helicopter has enormous possibilities, some of which may prove truly revolutionary. The veteran need only to ponder briefly on the delays imposed in World War II by terrain features such as rivers and escarpments to visualize what might have been done with helicopters capable of ferrying the first combat units to the far side before the enemy was set to meet the threat. And what great possibilities lie in the use of 'copters to permit seizure of small, critically important areas, either in the pursuit of a retreating enemy, or the protection of the flank of a rapidly moving [Armored column]! How effective the helicopter in moving troops to exploit weaknesses in the enemy position, or to exploit the effect of our own airpower, missiles and artillery! And finally, should our forces be on the defensive, how useful to the commander will be the capability of moving tactical reserves quickly from one place to the next in meeting or counterattacking the points of enemy thrust.

In addition to troops, the helicopter can move critically needed supplies—ammunition and gasoline—to the precise spot they should go. This alone can change the outcome of many combat actions.

The use of aircraft for command is not new, but it is increasing in scope. It is hard to exaggerate the advantage to the field commander in providing him a vehicle—sometimes an airplane, sometimes a helicopter—for his rapid transport across the wide areas of the battlefield. The present system of command in the United States Army is directly dependent on the aircraft for its effective application.

And finally we come to evacuation of the wounded, by helicopter. A time-proven, battle-tested expedient, it is responsible for the life and health of many American citizens.

This then is the Army's need for organic aviation. The United States Army must remain the most modern and versatile in the world, and this in turn demands that we take every advantage of the advances of science and technology. And to the American aviation industry we must turn for a vital ingredient of battle success: *mobility.*

* * *

Von Clausewitz, the great military teacher, said, "The theory of warfare tries to discover how we may gain a preponderance of physical forces and material advantages at the decisive point. . . . In any specific action we always have the choice between the most audacious and the most careful solution . . . it is the nature of war to advise the most decisive, that is, the most audacious." This has often been the key to American battle success. The airplane, in its modern form, will contribute greatly to the Army's ability to apply the theory effectively, again, should war come upon us.

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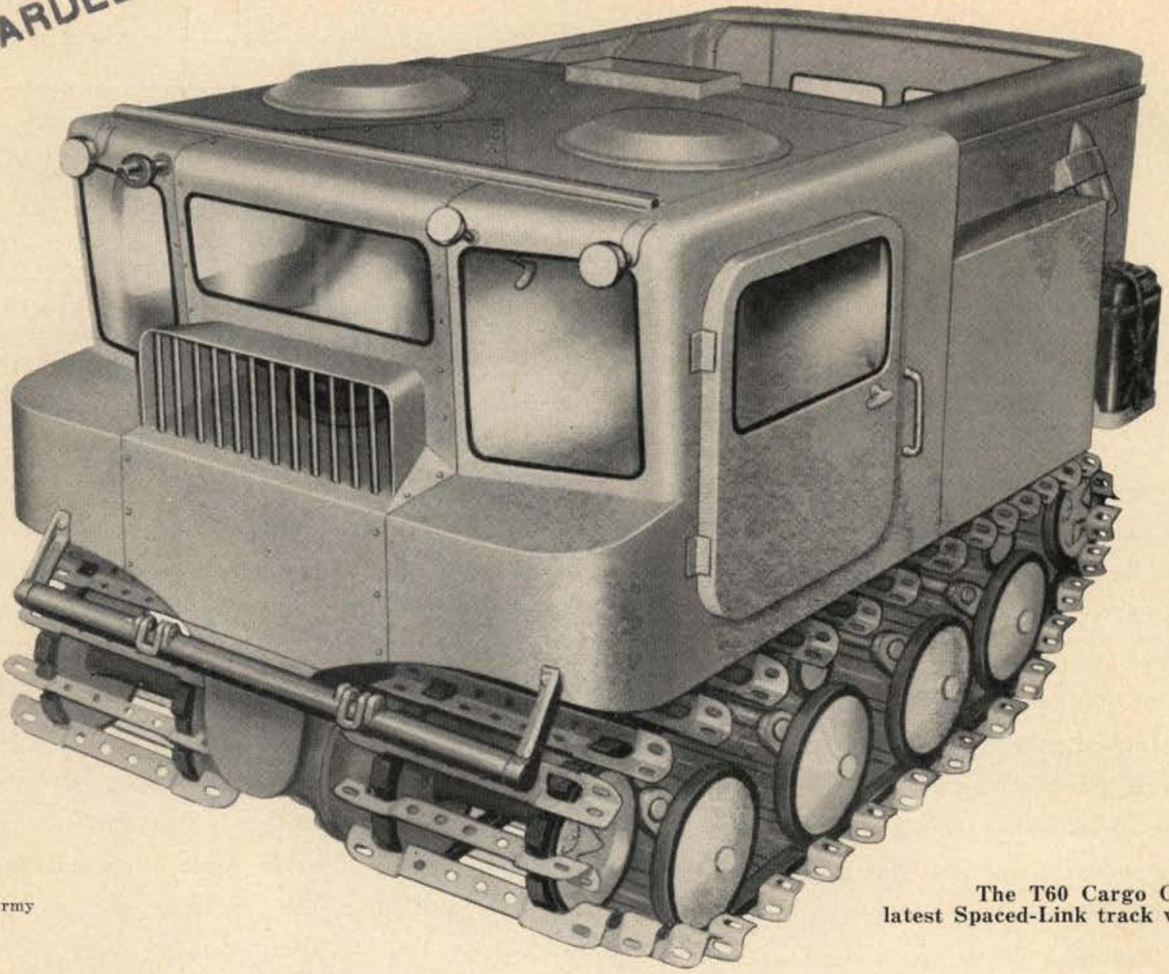

U. S. Army

The T60 Cargo Carrier
latest Spaced-Link track vehicle

The New Science of Terradynamics

By GARRETT UNDERHILL

SCIENCE, it can now be said, has finally achieved a breakthrough which promises to do for "land power" and the cross-country mobility of military and commercial vehicles, what the Wright Brothers did for air power and the mobility of flying machines.

Furthering work begun by Canadian defense authorities, the United States Army has firmly laid the foundations of this new field of science: terradynamics, or the science of land locomotion.

From present indications, terradynamics will throw into the limbo of outmoded thinking, all present ideas on the fuel consumption of land forces, and their ability to negotiate snow, mud, water and mountains. Because in land power, mobility ("getting there fustest with the mostest") is more important than firepower, the perfection of the new science is more important for land power than the development of atomic cannon.

More significantly, the new science promises to have striking effect on the civilian economy. It will help reduce the damage done to highway surfaces by heavy trucks. It will vastly improve the efficiency of farm and earth-moving machinery. It will make tractors, bulldozers and the like more economical and efficient. It will enable them to do the same work for a fraction of their present weight.

Finally, it will be of revolutionary aid to those nations, such as Southeast Asia, which are backward economically, and which are stymied in development because they cannot afford the hard-surfaced roads and bridges necessary to the normal Western system of automotive transport.

The creation and development of the science of terradynamics has an importance for America which is truly incalculable. This is because terradynamics is the locomotion science of the automotive industry, and in the United States the auto industry has always been far and away the world's greatest. In fact—and this concept too long has been unappreciated—United States is not primarily an air power or a sea power, but *an automotive power*.

Since Henry Ford devised his Model T, no nation has ever been able to approach our automotive industry, either quantitatively or qualitatively. In particular, Soviet Russia has lost rather than gained ground in both respects, ever since she started her great drive for automotive power in 1927. Our auto industry has an output more than ten times Russia's, without really trying. As for our qualitative automotive superiority over Russia, it is vast, both as to modernity and as to ruggedness and reliability of product.

The American auto industry differs from the industry supporting our air power, in that the United States air industry (like the Soviet's) is almost wholly dependent upon military orders. Even the United States commercial air fleet (which is small, running to some 1500 4-engine and 2000 2-engine transports) depends upon government aid, and derives engines and many components from military financed developments.

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What has been said of the United States air industry may be said of the industry supporting United States seapower. The shipbuilders are dependent very largely upon Navy orders, and upon subsidized commercial shipbuilding and ship operation. United States shipbuilding and shipping definitely is non-competitive in the world market and has been for over a generation.

In contrast, competitively, the United States auto industry dominates the world. Even Soviet Russian truck builders feel they have to give their products "the American look"; thus, for instance, the radiator ornament of Yaroslavl trucks (which is a bear), and that of the Minsk truck plant (which is a bison) are made to resemble the bulldog ornament of the Mack trucks.

However great and world-recognized America's position as a commercial automotive power may be, Americans never have demanded of its Army and auto industry, the degree of supremacy in off-road vehicles which swim (increasingly vital to a military mode of auto power) which has been so easily achieved in wheeled vehicles built to travel on hard-surfaced roads and use bridges.

When there has been any significant effort to create a military mode of our commercial automotive power, the emphasis has been on a crash program for war emergency, as in both World Wars and Korea. During such frantic "flaps" there has been little opportunity for research, either abstract or applied; emphasis has been on immediate and huge production. There absolutely has been nothing comparable to the vast and constantly increasing research and development effort applied over decades to aviation, or indeed, to naval architecture.

As a result, in the early 1950's United States stands, as regards science in the field of her true power potential—automotive power—about where the Wright Brothers put America in heavier-than-air flight 50 years ago.

The parallel is close between what the Wright Brothers did to revolutionize aviation and create the science of aerodynamics, and what the founder of terradynamics has done.

The Wright Brothers attained their

Figure 1

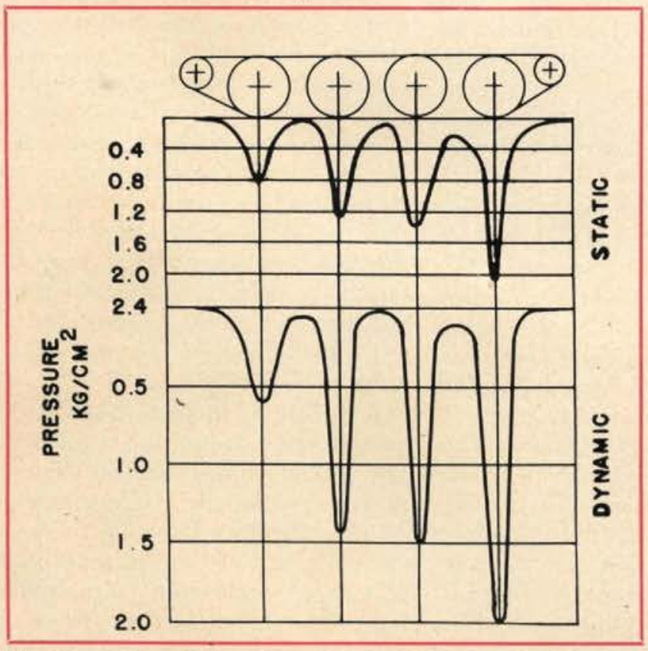
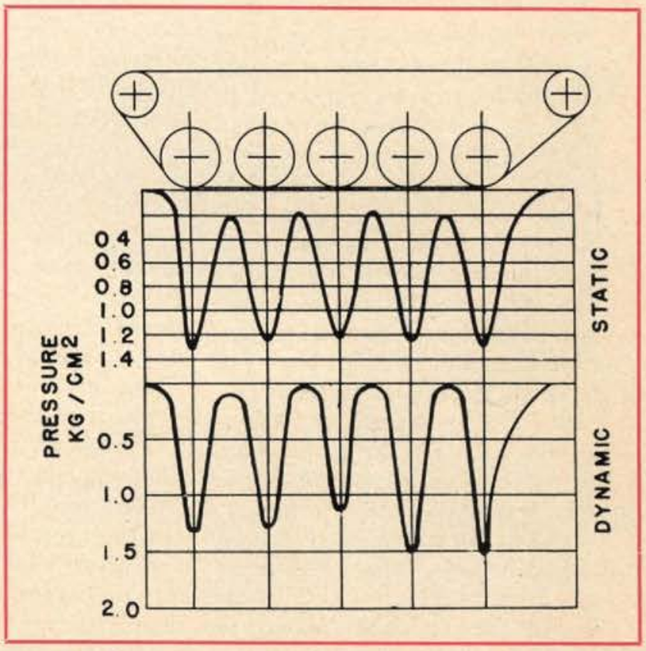


Figure 2



Simple aspects of terradynamics are illustrated by diagrams from a 1944 Russian textbook, "Tank Theory" by N. I. Grusdev. FIGURE 1 shows the BT7 Christie tank, belonging to the wave of Soviet armor of the 1930s. Its weight is distributed unevenly from rear to front. The tank was nose-heavy and tended to dig in when moving over soft ground. FIGURE 2 shows the T70 tank, belonging to the 1940 wave of Soviet armor. It has largely equalized static weight distribution and proved more efficient. The lower halves of the graphs for each tank show how the dynamic effect of slight speed (0.625 mph) varies the weight distribution from the static condition. Note particularly the front road wheels for the BT7.

scientific breakthrough when others had failed, because they took a two-fold approach to the problem of aerial locomotion:

1. They made a systematic study of the problems of flight, instead of continuing on the previous line of cut-and-dry experiments. (On 30 May 1899, Wilbur Wright wrote to the Smithsonian Institution in Washington, asking for all available aviation information, saying: "I am about to begin a systematic study of the subject in preparation for practical work. . .")
2. They created a special new type of test facility, the world's first wind tunnel, to permit constant practical checking of the development of their systematic theory.

The founder of terradynamics found that, in land locomotion, science has been utterly lacking; engineering in the field has proceeded on the same cut-and-try experimental basis that failed to give results in aviation. This unsystematic approach, it is now clear, reached a limit of development 20 years ago. No significant improvements have been forthcoming since.

To alter the situation, the terradynamics founder and his United States Army sponsors have been hard at work, following up the pioneering work begun under Canadian aegis. Here's what has already happened:

1. The original systematic study of land locomotion, completed in 1952 for the Army's Operational Research Office operated by Johns Hopkins University, is now in publication in book form as *The Theory of Land Locomotion.*
2. Initial testing of the theory has been accomplished by temporary adaptation of the Stevens Institute Experimental Towing Tank for terradynamics studies. The tank normally is used for furthering the science of hydrodynamics, or water locomotion, and hence development of naval architecture.
3. The Stevens work has been followed up by the creation by the Army Ordnance Corps, at its famous Detroit Tank Arsenal, of a true Land Locomotion Laboratory: the terradynamics equivalent of the wind tunnel of aerodynamics and the ship model tank or basin of hydrodynamics.
4. The Ordnance Corps has been seeking to encourage scholarship in the new science. By such actions as the creation of a new scientific periodical, the *Land Locomotion Bulletin* (with first issue appearing in January 1955); by the sponsorship by the Office of Ordnance Research as operated for the Ordnance Corps by Duke University of an International Symposium on Vehicle Mobility at Stevens Institute in March 1955; and by the creation of a seminar in land locomotion in cooperation with the University of Michigan.

This stimulation of international scientific scholarship in this vital field antedated the atoms-for-peace program and the Geneva Conference by months, and the basic reason for this effort has been well stated by Colonel H. C. Parsons in a foreword to the first *Land Locomotion Bulletin,* at the time he commanded the Detroit Arsenal:

"New concepts and ideas in the field of land locomotion are greatly needed. These must be founded on a more rational basis than present empirics.

"No technological effort to satisfy similar needs has ever succeeded without wide interest and support of professional circles."

What the new science of terradynamics can do for civilian as well as Army mobility is hinted at by an armored caterpillar vehicle now coming into service: the M59 Armored Personnel Carrier, a 20-ton vehicle now in increasing demand throughout the Army.

Now this 20-ton armored box looks similar to the earlier M75 model. It has the same tracks and suspension (those of the M41 Light Tank). But the M59 has this peculiarity: *it floats and swims, in still inland lakes and rivers, without any special flotation or water propulsion devices.*

This is for a simple reason. The designer, James Hait of the Food Machinery and Chemical Corporation, got experience of naval architecture (or hydrodynamics) when developing during and since World War II the famous amtracks, the amphibious landing tractors and tanks. As the founder of the science of terradynamics has shown, the naval architect or aeronautical engineer applies in his field the same sort of dynamic load analysis approach to design for ship travel in rough seas, that is needed to negotiate rough land terrain.

Indeed, it seems that in terradynamics, the Army and its supporting industry face a more complex science than the Air Force or Navy in their spheres. For terradynamics combines the "rough seas" of the ocean (in the form of rolling and rough terrain) with operations in a medium which is not only of variable density (like the air), but varies terrifically from hard rock to the loosest mud and sand, and moreover many types of soil offer far more complex "skin friction" problems than locomotion either in water or air.

Nevertheless, in what may be called the first major example of terradynamics, Mr. Hait has demonstrated how—if a vehicle doesn't have a terrific weight penalty like heavy armor or a gun turret—the vehicle will automatically float in water, if its hull and traction system is arranged efficiently to negotiate terrain. That is: if a vehicle is "landworthy," usually it will be "seaworthy." Thus, the men of the Army must prepare to add small boat handling and naval tactics to their already complex profession.

Of course, it is sufficiently revolutionary for the Army to have created a personnel and utility carrier which swims. Swimming means that mobile armored forces can now no longer regard waterways as barriers; surprise crossings of rivers can be effected by all troops, for artillery up through 155mm howitzers can be towed across by these vehicles, by the provision of the simplest of inflatable devices for the towed equipment and weapons. Given the right conditions of current and direction of a river's course, rivers can actually become favorable routes of march for modern armies.

But there is more to the terradynamics design approach than that. For, if the vehicle and its traction system are properly laid out to constitute a "landworthy" unit, the vehicle is also very efficient in smoothness of travel, noiselessness of caterpillar tracks (if used), in ability to negotiate types of terrain, *and finally and most important, in fuel consumption.*

Field operations so far indicate that the M59 design is taking only a gallon to a gallon and a half of fuel (depending upon the driver) to a mile, whereas the unscientific M75 design burns 3 gallons per mile.

That this should be so, is not at all remarkable. Last year, in closing its first experimental model test basin, the United States Navy said that this 1897 facility, built at a cost of $105,000, and here quoting from the Navy release, "was the scene of highly technical work which enabled the prediction of ship performance to become a precise science," with the result that "every important development in naval architecture in the United States since the old 'EMB' was placed in commission can trace its start to studies in the basin."

And high among these developments—especially to an Army now as concerned with the problem of fuel consumption of its vehicles as the Navy then used to be of its ships—was the fact that an early contribution of the model basin was a new type of ship bow, *which cut in half the annual coal bill for the Navy.*

For in all of the "dynamics" sciences, design efficiency is expressable in terms of *speed, range and fuel consumption.*

In this connection, it is vital to understand that *there is nothing new in the M59.* It contains conventional armor, a light tank traction gear; its power plant is adapted from General Motors truck-bus commercial engines and transmissions; its steering is of the controlled differential type so familiar in World War II. The M59 is what is today called an *applications engineering* piece of equipment, made from extant materials and proven components.

Moreover, the Army and industry have lowered the cost to $25,000 per vehicle—startlingly little considering that a 2½-ton capacity truck costs over $7,000, has no armor, can't swim, can't go cross-country like a caterpillar, and can't match the 11-ton cargo load the M59 can carry if necessary. As it is, its cost is based on a low production order while the truck price is based on mass production.

The facts on the M59 are of the deepest significance to the nation and the world. Unlike the Wright Brothers' first plane, as developed from the then new science of aerodynamics, which was lucky to fly at all, this M59 vehicle appears itself already to revolutionize warfare, with its amphibious quality and its low fuel consumption.

And incidentally, its use of standard items lowers its cost to 60¢ a pound—much less than steak—so that it costs under four times less than its immediate predecessor which lacked its qualities.

The M59's high performance, and possibly revolutionary tactical qualities, despite use of conventional components, is important because the present state of the science of terradynamics shows that *caterpillar tracks and wheels as we know them are not the lines of traction media development which will guide land vehicles to the same "open-ended future" as the airplane had in the Wrights' day.*

It may be said now that other and proper avenues of development are apparent, that is why it is possible to assert that the United States Army is on the verge of a technological breakthrough in land locomotion.

The challenge posed by these developments is tremendous; challenged are the habitual thought-patterns of existing engineers, industrialists, soldiers and statesmen. The challenge is similar to that faced by other services with the advent (in navies) of steam propulsion—and now atomic propulsion, which has caused ever-increasing mobility efficiency and therefore constant tactical and strategic significance; changes at times amounting to revolutions. It is of course similar to the challenges constantly posed aviation, by the vast continuous increase, for example, of horsepower of propeller piston engines, and of aerodynamic capabilities of airfoils, rising during World War II to the jet, ramjet and rocket speeds and aerodynamic forms now coming into practical use, carrying planes from speeds of 250 miles per hour, through the sound barrier, up to present 1,500-mile-per-hour speeds, all in 15 years.

It is important to understand how *only now* is land locomotion getting on its scientific feet, and historical studies published by the Ordnance Corps now enable the sad story of neglect of land locomotion to be unfolded.

For the present situation, the growth of railways in the 1800's is largely responsible. As the industrial revolution got under way in the 1700's, there was an urgent need for a good system of collection and distribution through the countryside. In America and Europe, roads were usually impassable during Autumn rains and Spring thaws—as in Russia today. As a result, in 1770 Richard Lovell Edgeworth patented the caterpillar track as a "portable railway," but real railways soon took over transport; the railway network was so tightly meshed that horse-drawn wagons had to make only short hauls.

Then came the auto, just before World War I. As recent studies show, the vehicle which brought the automotive age—the Model T Ford—was an excellent cross-country vehicle, especially considering that it was developed on an empirical, non-scientific basis. It had thin-tired wheels which cut right through the mud and loose soil to pick up bearing surface; the wheels' big diameter enabled them to roll under such circumstances. High off the ground, the Ford could literally ford most streams farmers encountered. Important, from a non-scientific aspect, was the fact that the Ford, like the M59 today, was cheap and easy to fix, so it could be bought and maintained easily and economically.

So Fords as a mode of transport transformed the world. They created a demand, and an all-important economic justification, for faster and more efficient automotive transport.

The answer of the auto industry to this demand wasn't further to develop off-road travel. Instead, in Europe and America, the auto industry *reverted to the Roman mode of land locomotion of 2000 years ago.* Hard-surfaced roads and bridges were built, with good foundations. On these, most anything will roll, even if it is an atrocity from the viewpoint of the science of designing truly "landworthy" vehicles.

Having accepted the road, the auto industry froze the basic concept of the automobile early in the 1920's. Thereafter automotive engineering has been forced to engage merely in the further refinement of established details: making things better, with much emphasis on mass production. Indeed, in this situation the most important scientific and engineering factor became the development of fuels and lubricants, because the cost of

Bob Phillips, *Black Star*

Application of terradynamics in constructing the M59 enables it to "swim" without any special propulsion device.

these items used by a car in the span of its normal life, usually exceeds the car's own cost. But the major factor upon which future development of the auto (as known to date) has depended, is the development of super highways and traffic controls. In this connection it is a sad fact that the future development of forms for even road-bound cars and trucks, is limited by the fact that road widths derive from the lateral dimensions of the Neolithic stone age wooden ox-cart, which set the size of the rough tracks which in the course of history became roads and then paved roads.

Trench warfare of World War I did create anew a demand for cross-country travel; the result was the tank, with traction gear based on the American Holt caterpillar tractor invented in 1911. But this demand fell off after the war, to be renewed only with the outbreak of World War II. In World War II, as in World War I, the effort at military land locomotion was on a crash basis in Western Europe as well as the United States. With production the aim, any sort of systematic investigation of the problem was out of the question, especially considering the limited number of engineers with any "knowhow" in the field.

In 1945, the Emergency Tractor Committee of the famed Society of Automotive Engineers (*SAE*) did urge "a consideration of a long-range research program for the purpose of providing concrete information upon which the mobility characteristics of new military vehicles can be based." It remarked, significantly, that: "the results of such work may also help our peacetime economy."

Unfortunately, in the years between World War II and Korea, economy dictated an Army policy of developing components of vehicles, instead of developing whole vehicle design concepts, and the basic research program called for by the SAE committee in 1945. Commercial and military policy was similar, with no appreciation of the need for an organized scientific approach, and a conspicuous lack of physics and mathematics in the current technical literature of the automotive engineering field.

Between 1946 and 1952, in all research on vehicle mobility, both military and commercial, only 4½ per cent of the funds went to anything resembling studies of the basic relationship, according to physics, of soil and vehicle; 70 per cent went to empirical (non-scientific) observations of geological-weather-climatic-ground conditions from the viewpoint of trafficability, when and where present vehicles can move. The other 25½ per cent went to practical, unscientific attempts to solve the knotty problem of vehicle mobility.

The results of this condition were expressed in terms of the lack of mobility and high fuel consumption of the vehicles designed and built after war broke out in Korea; another shocking example of the wasteful folly of not carrying out adequate military research and partial production programs in peacetime. In contrast to the Russian T34 medium and Stalin heavy-gun tanks, which burn about ¾ of a gallon per mile, the new Patton series tanks are burning from 3.7 to 5.6 gallons per mile; this excessive consumption, which imposes upon United States and Allied armies a horrible mobility and logistics problem, is due in no way to any deficiency of the truly excellent (for their type) automotive components of each vehicle. It is due to the complete lack of a systematic scientific design approach, resulting in what are at last known to be violations of the science of terradynamics. It is no more or less than what was feared all along by competent Army authorities.

The low fuel consumption of Russian tanks is highly significant. The unfortunate fact is that Russia's almost total lack of automotive industry, and frightful railway network, brought the Russian military forcefully to face the off-road locomotion problem late in the 1930's, some 20 years before United States did.

At first, about 1930, Russia was content to borrow and adapt United States Christie and British Vickers tank designs: their automotive parts were highly reliable. But Western armies were accustomed to march their armor to combat on roads, which in Russia then were hardly extant, and when they did exist, often were as deep as they were wide. Having no such roads, Russia's armor was virtually often unable to get to a fight. As a result, a whole new era of tank design was ushered in by youngsters like Morosov and Kotin, who built by 1939 what are now recognized in the West as the well-laid out T34 medium and Stalin heavy-gun series tanks. Like the current United States M59, these were "applications engineering" models using nothing but common materials and components; unfortunately, although Russia sent sample tanks to her Western allies, these allies dissected the tanks and examined the components, admired the low ground pressure exerted—but failed to appreciate that a whole new approach to cross-country vehicle design lay behind this armor.

In contrast to what has gone on in the United States, in Russia scientific literature on the theory of the tractor is abundant and scholarly. Textbooks by Kristi, Lvov, Tsudakov, Goriatchkin, Letoshnev, and others teach an engineer the general theory and principles of tractor design, instead of supplying him merely with a descriptive catalog of components and assemblies, and their operation, as is the case in the West. The only known theoretical treatise on tank design in the world is a 1937 book by a group of Russian engineers, from which appears to have sprung the Kotin-Morosov approach and the revolution in tank design they started.

It is not at all surprising that the United States Army's "new look" in land locomotion springs from a mind placed in the same position as Kotin and Morosov. Lieutenant Colonel Mieczyslaw Gregory Bekker, the founder of terradynamics, who perfected the *Theory of Off-Road Locomotion* while working under United States Army auspices, was born and trained for automotive and tank engineering in a roadless nation like Russia: Poland. Graduating with an engineering doctorate in 1928, Colonel Bekker also tried to make do with Vickers tanks in the trackless steppes and swamps and forests of Poland, so like Russia's and now part of Russia. Like Morosov, he and his colleagues by 1939 came up with a vehicle design like the Russian T34. Fleeing Poland when Hitler took over, he worked for France's then topflight tank industry till Hitler again drove him out; and this time the Allies put him safe in Canada, to help with tank construction there. Before the war's end, Colonel Bekker, by then a Canadian officer, had under way his theory and two applications; with Canada's abandonment of any military automotive effort after World War II, Colonel Bekker was lent to America, where under the aegis of the United States Army's Operational Research Office and Army Ordnance, he has brought his work to fruition.

The benefits appear impossible to estimate. Take, for example, what has been discovered and accomplished in the field of caterpillar tracks. Research easily established that development of both military and commercial tracked vehicles has been upon a non-scientific, unsystematic "cut-and-try" basis. As a result, current and long-accepted tractor design concepts can be shown to have reached a maximum limit of development long ago.

For instance, the ground-crossing ability of caterpillar tracks reached a virtual peak by 1917, and unscientific efforts since then have affected performance but little. In what is known as "Nebraska soil," the tractive ability of the newest tractors (and military vehicles) can be shown to have the same "scatter" between top and bottom performance, as vehicles of 30 years ago: that is a pulling efficiency of from 95% to 75% of their gross vehicular weight.

Work in translating the theory of terradynamics into practical forms of new-type traction devices has now, in the words of Ordnance's automotive specialist Colonel G. T. Petersen,

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A later version of the "groundhog" spaced-link track rig.

Bob Phillips, *Black Star*

The M59 affords protected amphibious and land mobility.

"radically changed the present static situation." One such new-type traction device invented by the founder of terradynamics and built in test form at the Aberdeen Proving ground of the Ordnance Corps, has startlingly increased the drawbar pull to weight ratio. What is vastly more significant, when it was installed on a special test rig called the "Groundhog," the track enabled the "Groundhog" to operate readily in bottomless bogs of mud, in sand, and to climb snowbanks which would immobilize ordinary wheeled and caterpillar vehicles, including special-type snowmobiles. And, unlike other forms of high-flotation devices, the spaced link track is not bulky, and can be run at high speeds.

All this is as vital to commercial as to military transport potentials. For instance, it should be well known to those who must employ bulldozers, as well as other earth-moving caterpillar tractive equipment, that work under muddy conditions is virtually impossible. The wheel, whether in extant commercial or military forms, is even more worthless, for travel or pulling in deep mud. To be able, then, to pull in the worst weather conditions, and to exert that pull for a fraction of present vehicular weight, means to commerce as well as to the military, a saving of steel, and a saving of dollars.

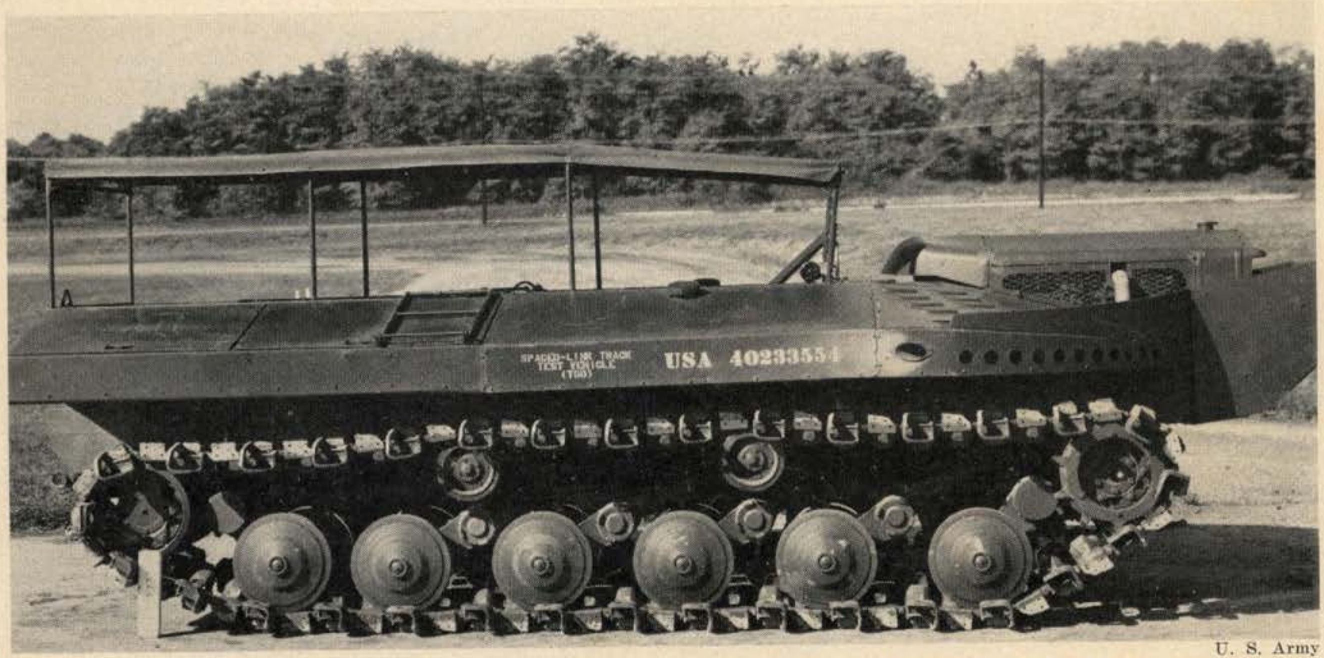
It also appears that, by sponsoring this work, the Army will have proven of inestimable service to military and commercial aviation. At present, aircraft—particularly the big air force and commercial ones—are "very heavy on their feet." Single-seat fighters like the F84 Thunderjets and Thunderstreaks require concrete runways 8,000 feet long and 8 inches thick, so that each NATO airfield costs $10,000,000; B-52 bombers have cracked runways a yard thick just when taxiing. The United States Air Force, conscious of the need to make planes light on their feet, experimented after World War II with tracked landing gear, hoping to enable even giant bombers totally to dispense with runways and to work off unprepared farms and even beaches. Unfortunately, the Theory of Land Locomotion shows that this effort was working up an unproductive dead end of development; and while the USAF effort failed, the Army's work shows that lines of development are open which now can enable aviation to free itself from the vast expanses of "concrete tundras" which, as airfields, appear to be strangling the West as demands for commercial and military airfields increase.

The most important contribution of the Theory of Land Locomotion, however, may be in averting war.

Those areas which today are powderkegs, are the so-called backward areas, like the Middle East and particularly Southeast Asia, where economic standards are low; where in consequence Communism has fertile ground for the propagation of its subversion and aggression. Their crying need is for an adequate collection and distribution transport net, to permit them to catch up with the West in the fast pace of the industrial revolution.

These areas are denied the blessings of the automotive age, because in its present form, Western automotive devices require road and bridge systems which these areas cannot possibly afford—nor can Uncle Sam, in most cases, afford to help them with anything like adequacy. Rails, too—as India has discovered—are now priced out of the market in the West itself, where railroads no longer make the money they once did.

Thanks to what the United States Army has sponsored, it is highly likely that in due time, these areas will be able to go through the "Model T Ford" automotive transport stage, with far more efficiency than did United States and the West some decades ago. As the M59 indicates, unarmored transport vehicles, using Detroit's highly available and reliable commercial automotive parts, can swim rivers and lakes, with full cargo, requiring no costly bridges. Bulldozers, of lighter weight and less cost than any now conceived of, can open up tracks, along which the new-type ve-



U. S. Army

A side view of the spaced-link track test carrier that can easily operate in bottomless bogs of mud, sand or snow.

hicles can travel, despite the worst tropical downpour, and the loosest and most parched sand.

As regards the Army and its military needs, and future potential, it is well to recall the slow development of ships, and their capacity to range the ocean. In Greek and Roman days, galleys with rowers were such poor seaboats and sailing ships, that they hardly dared fare out of sight of land; they were beached at night, and crossed the narrow Mediterranean Sea only by coasting down the boot of Italy, and using the steppingstones of Sicily and adjacent isles, to reach Africa.

When our ancestors came to colonize America in the 1600's, an Atlantic crossing was a very perilous adventure; indeed, as late as the 1890's liners still disappeared without a trace, and the Blue Ribbon holders of the Atlantic speed records, counterparts of today's Queen Mary, carried sail as "boost" power, and for emergencies. Since the advent of steam, fuel for liners and warships always has been a major problem, until, only this year, a vessel took the seas which can cruise around the world and more, with atomic propulsion.

Today the cross-country vehicle appears to be in the crude era of the Greek trireme, in itself a marvel for what it was, but hardly the proper approach to the problem of sea locomotion. In consequence, those who say that the land mass of Eurasia is too vast for armies to move across, are 2000 years out of date in their thinking. Armies—land fleets—can, and will, range those distances, just as ships came to range the ocean spaces, and aircraft the regions of the air, and now, outer space.

Nor need the type of terrain, any more than distance, pose insoluble problems. If the allies in Indochina had had the protected amphibious mobility which the M59 affords land forces, it is highly doubtful whether the Communists could have made their guerilla actions prevail. General Trudeau's initial use of the earlier, non-scientific M75 in Korea at Porkchop Hill, just before the Armistice in 1953, showed how the restoration of cavalry mobility to United States and Allied forces can offset Communist manpower according to the best traditions of United States Civil War leadership; not a few intelligence specialists on the Soviet and Communist forces are convinced that it was this Porkchop affair, in which even in mountains United States mechanized mobility for infantry and engineers was so well demonstrated, which induced the Red Chinese finally to quit their two-year bickering, and conclude the truce, before the United States Army easily and conclusively whipped the Red armies within the political limitations imposed by Washington. The job which faces the United States is not the peculiar business of the Army, its Ordnance Department, or of industry, or of the field soldier. The M59 conclusively shows that it is going to be a job for everybody. Food Machinery, as is obvious, is not an outfit specializing in automotive matters; it just saw how things could be done better, using Detroit's incomparable automotive engines and parts.

The M59 case is significant, because—as is shown so often throughout history, the pace of development —in both commercial and military forms—of any new science like terradynamics, is going to be set by America's military men. And this pace is one which must be set with due regard to Russia and her established scientific knowhow.

It would be a catastrophe to have Russia score the first major land locomotion breakthrough: catastrophic to air as well as land power, and catastrophic to America's position in the new international race to further the welfare of mankind.

Leadership in the race is especially important for the United States, because should defense needs again arise from some change in Kremlin policies, auto power offers (ideally speaking) a way to win wars large and small, without actually hurting people and destroying things. Mobility means the capability of maneuvering with such speed and sagacity, that the enemy sees that he is in no position to fight, before any real shooting starts. What firepower is used, can be used selectively, often to neutralize —to block enemy action—rather than to destroy and kill.

The German panzer leader Heinz Guderian showed in his 1940 blitz of the Western European Allies just how this can be done. His 10 panzer divisions whipped the French Army of 114 divisions—plus 10 British, and more than a score of Belgian and Dutch ones—without the Westerners ever being able to get into proper position to fight; the panzers stampeded their less mobile foes, then rounded them up like cattle. Air action, devoted to teamwork with the panzers' swift strokes to keep the enemy off balance and bewildered, also did little damage. As a result, the Germans lost few of their own men, killed few of the enemy. They seized by their swift movement, more stock of perishable goods (like gasoline) than their automotive-air team expended in the whole campaign. And naturally the population, industry, and transport network of the West was taken virtually undamaged.

This 1940 action, achieved by Germans who actually were the merest amateurs and imitators of our auto power and mobility supremacy, is only a hint of what the United States can do for defense. Such a defense means that an aggressor people would know that, should war come, our action would be selective: to dash in and protect the oppressed, while seeking out and hunting down the individual tyrants. Auto power can gain intelligence of a small band of malefactors, and capture them without ruining the landscape, obliterating populations and industries wholesale, and rendering the world radioactive.

Thus it can do what marvelous missiles and stratospheric bomber aircraft cannot: It can bring full realization to each tyrant who may plot to plunge his people into war, of the fact that the target will be himself and his fellow. No longer can the tyrant aggressor hide behind the masses who, loath to fight, are driven to war and compelled to resist, by the tactics of opponents whose war means does not differentiate between oppressors and oppressed.

Auto power is the *bridge to victory* by brainpower—to victory by the superior thinking necessary to superior mobility to outwit what may be a numerically superior, and apparently better-equipped, enemy. It is the American way of war—the way of the French and Indian Wars, of Washington and the Revolution, of Lee and Jackson and Sherman, of Patton and Devers.

CARDED

What is our concept for reconnaissance in future warfare?

EYES AND EARS FOR TOMORROW'S COMMANDERS

By LIEUTENANT COLONEL GEORGE B. PICKETT, JR.

THE purpose of this discussion is to suggest a re-evaluation of our concept of reconnaissance to determine if it is adequate for a two-sided atomic war. This requires a consideration of such problems as: What is our present reconnaissance concept? How was it evolved? Has it really been evaluated since World War II in the light of possible two-sided atomic war? What are the reconnaissance requirements for ground units in a two-sided atomic war? Does our present concept satisfy these requirements? Is a new concept needed? If so, what is the new concept? What means are available to implement it?

Most of these questions are far easier to ask than to answer. Consider first, what is our present reconnaissance concept? To answer this we must first examine the military heritage of the United States. Since 1861, we have achieved victory in war in every case by building up and applying such an overpowering superiority of manpower and material that the enemy has usually been bludgeoned to defeat, sometimes with very little real finesse. This system is alleged to have been conceived by Grant as a means of defeating Lee by attrition and as a means of utilizing his tremendous superiority in manpower and matériel to best advantage.

World War II tactics were characterized by concentration of means *en masse* in front of the decisive point or in a favorable position from which to strike the decisive point. Such a method in a two-sided atomic war would invite disaster. Under such a concept, reconnaissance is primarily used to prevent surprise rather than the old "JEB" Stuart role of "the eyes and ears of Lee and Jackson." We saw this former concept utilized in World War II in the ETO where missions assigned to Armored Reconnaissance units were predominantly task force or security missions. Statistics compiled by the European Theatre General Board immediately following the war showed that the missions performed by various types of reconnaissance units in the ETO were as shown in *Figure 1*.

Analysis of these figures reflects two factors: First, the Grant tradition; and second, the concept of reconnaissance during World War II.

The World War II concept of ground operations was based on:

1. Concentration of forces into assembly areas prior to the attack as a means of achieving su-

Reconnaissance Battalion, Armored Division

Special Operations	48%
Security	24%
Reconnaissance	13%
Defensive Combat	11%
Offensive Combat	4%

Cavalry Groups

Defensive Combat	33%
Special Operations	29%
Security	25%
Offensive Combat	10%
Reconnaissance Only	3%

Infantry Division Reconnaissance Troops

Security	50%
Special Operations	39%
Reconnaissance	6%
Defensive Combat	4%
Offensive Combat	1%

Figure 1.

LIEUTENANT COLONEL GEORGE B. PICKETT, JR., Armor, who is a frequent contributor, is assigned to the G3 section, Headquarters, Fourth Army, Fort Sam Houston, Texas.

periority at the decisive point.

2. Concentration of the means, especially artillery support, into the assembly areas or in proximity of these assembly areas in order to support the attack.

The answer to the next question, "Has our reconnaissance concept been re-evaluated in the light of fighting a possible two-sided atomic war?" is "Probably"; but the moot question is whether the re-evaluation has been based on a concept of future two-sided atomic war or merely a re-hash of "what my outfit did in World War II." No one knows; but certainly our concept of reconnaissance must reflect anticipated battlefield needs of tomorrow, not yesteryear.

To answer the question of what our concept of reconnaissance should be in a two-sided atomic war, we must first know the concept of ground operations. Certainly the Grant system is no longer valid; any continuation of that concept would probably lead to ruin. The new concept must undoubtedly take into consideration the following factors, but naturally will not be limited to these alone:

1. Units must concentrate in time, not in space, preparatory for delivery of the main effort at the decisive point.

2. Large units in continuous contact with the enemy mass on wide extended fronts would invite disaster. The idea of two massed opposing forces facing each other on a line from Holland to the Swiss frontier is as obsolete as the asking of "You may fire first, brave Frenchmen," and having in reply, "No, after you, gallant Englishmen."

3. To exist, units must be dispersed but capable of rapid concentration to attack the enemy or to oppose his attack. Highly mobile ground forces with maximum airlift capabilities are required.

4. Once concentrated, *on the field of battle*—not off of it—the ground force must win its battle and disperse immediately before it is destroyed by hostile atomic attack. In brief, rapid concentration. Fighting characterized by speed of action of extreme violence, and rapid post-battle dispersion may be the real shape of things to come.

Next, what concept of reconnaissance is needed to support such a concept of ground operations? Certainly two requirements to support this concept are:

1. The location and surveillance of enemy striking forces and the location of potential targets for mass destruction weapons.

2. Countermeasures to prevent enemy reconnaissance from locating friendly striking forces and locating potential targets for enemy mass destruction weapons.

An analysis of these requirements indicates that we may find ourselves right back with the concept of Cavalry reconnaissance and counter-reconnaissance made famous by "JEB" Stuart, of whom Lee stated, when he received news of Stuart's death: "He never sent me a piece of false information." An analysis of combat requirements and situations during the pre-Grant era of the Civil War in the Virginia Theatre shows:

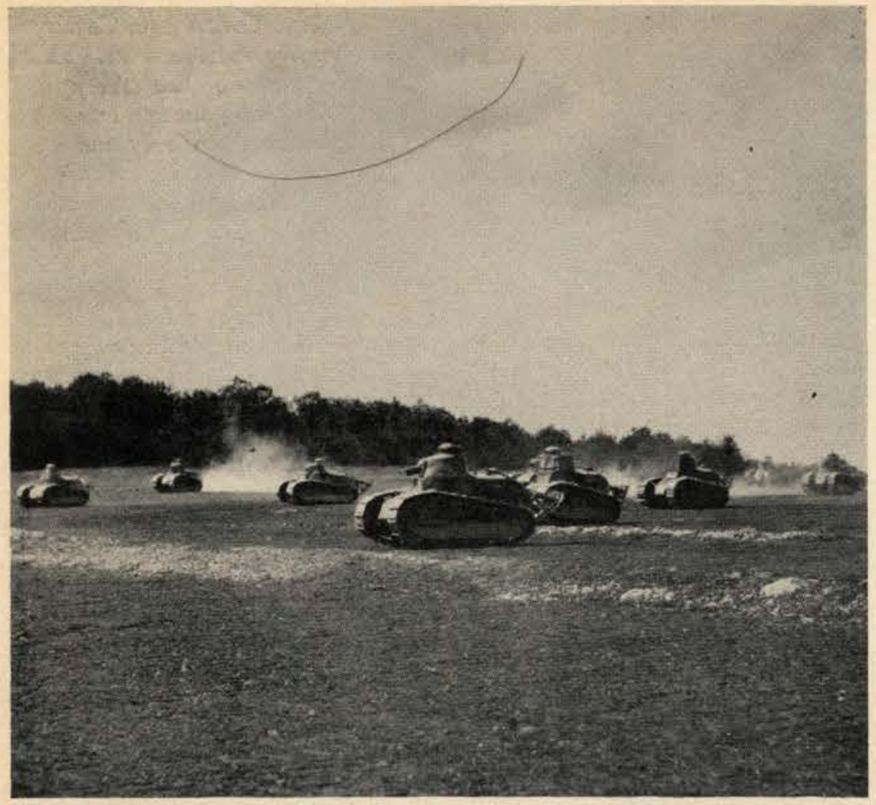
1. Main armies rarely faced each other massed for long periods within artillery range.

2. Most maneuvering was accomplished behind a counter-reconnaissance screen of Cavalry which prevented the enemy Cavalry from detecting the direction of movement and strength of the main maneuvering forces. This permitted such successful operations as Second Bull Run and Jackson's Valley Campaign of 1862.

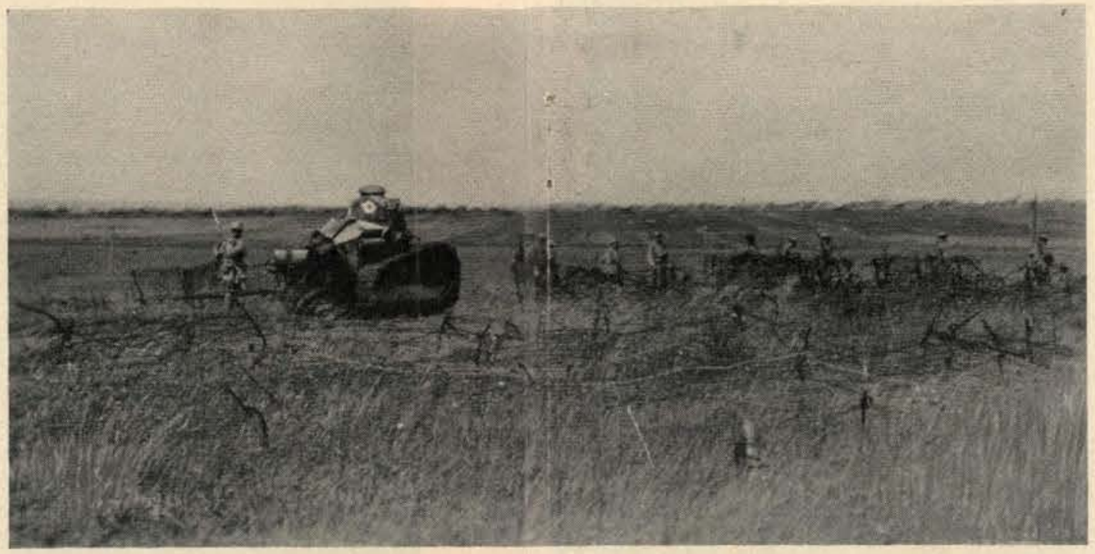
3. The opposing commanders were relatively blind when their Cavalry was "chasing enemy wagon trains," as Stuart did during the Gettysburg Campaign, or when they had insufficient Cavalry available. It is interesting to note that the Army of Northern Virginia was more than a match for Grant until Stuart's poorly mounted Confederate Cavalry was defeated, for the first time, at Yellow Tavern in 1864. Had Stuart been alive and had his troopers been equipped with decent mounts, Grant's swing down South to Petersburg, which forced Lee into a siege operation in front of Petersburg, would have had small chance of success. The mission of the Confederate Cavalry in offensive operations was "The eyes and ears of Lee and Jackson." Searching out and locating the enemy's main body and exposing his vulnerability was then, in reality, a major mission of Cavalry during that era. Picture the dramatic moment at Chancellorsville when the Cavalryman Fitz Lee pointed out the vulnerable Union flank to the mighty Jackson. Within hours, Howard's Yankees were stampeding in terror and the doom of Hooker's Union Army seemed sealed. Only the wounding of Jackson, by his own men, saved Hooker's Army from destruction. Today, the mission of reconnaissance is to find these vulnerable "flanks," just as Fitz Lee did, to enable our commanders to strike quickly, in the Jacksonian tradition, with mobile forces and/or mass destruction weapons.

The means available for reconnaissance today are not limited to the man on horseback or foot, or even to the few balloonmen that McClellan introduced in 1862. The means now available, however, can be divided into ground reconnaissance troops with special equipment, air forces, and electronic (or other) devices. The ground reconnaissance forces can include everything from the age-old dismounted patrol to the fully trained and equipped Armored Cavalry Regiment with its multiplicity of vehicles and communications. To this can be added the full weight of Army Aviation with its helicopter borne patrols; and high performance reconnaissance and photo-reconnaissance aircraft, coupled with such mechanical means as radar and mechanical brains. But all these means add up to give us the capability of accomplishing the same mission of the Confederate Cavalry in 1862: Reconnaissance and Counter-Reconnaissance. Our means of reconnaissance have increased; the enemy's capabilities for counter-reconnaissance have increased to offset them. But, basically, we may be able to learn a lot by re-evaluating Stuart, for there is ample reason to believe that finesse of maneuver, deception, and generalship are even more important on the atomic battlefield than ever before.

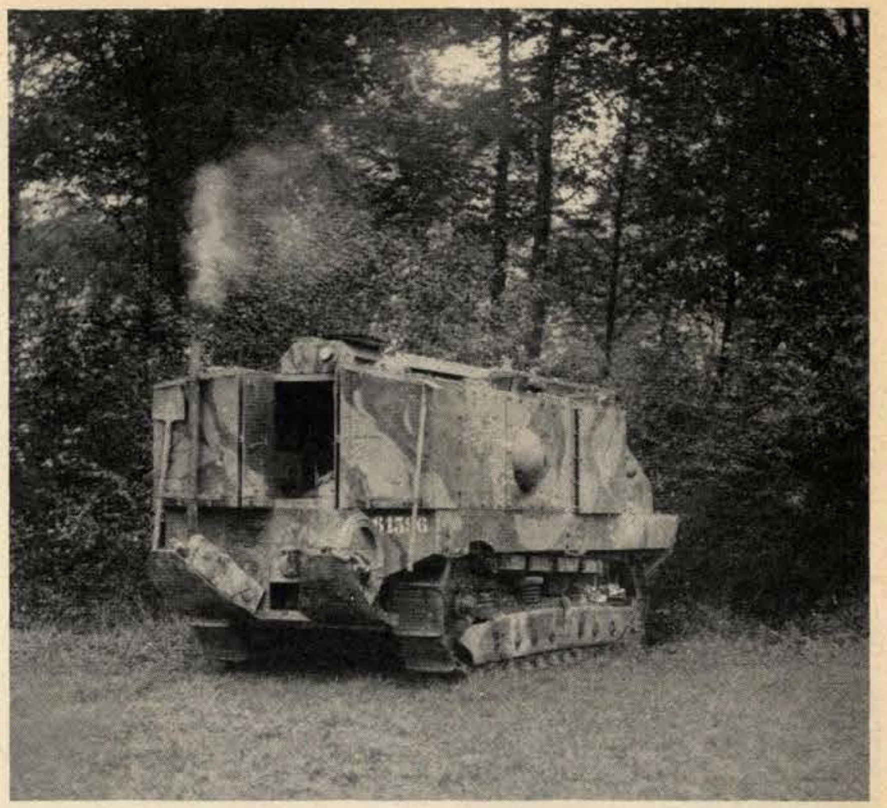
WORLD WAR I TANK CORPS



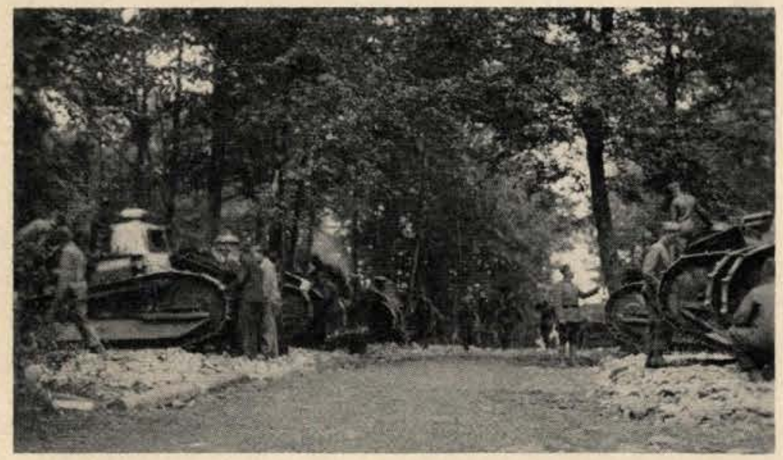
A World War I Tank Company in battle line formation during field training before going into action. Photo taken at Tank School, Langres, France.



The panoramic view shows a tank advancing with Infantry. One of the best uses was to clear out enemy machine gun nests in groves and in evacuated towns. Taken west of Essey, France, 1918.



This tank is shown entering woods, tearing down trees and brush during maneuvers in Breteuil, France. This tank looks like the forerunner of the present APC.



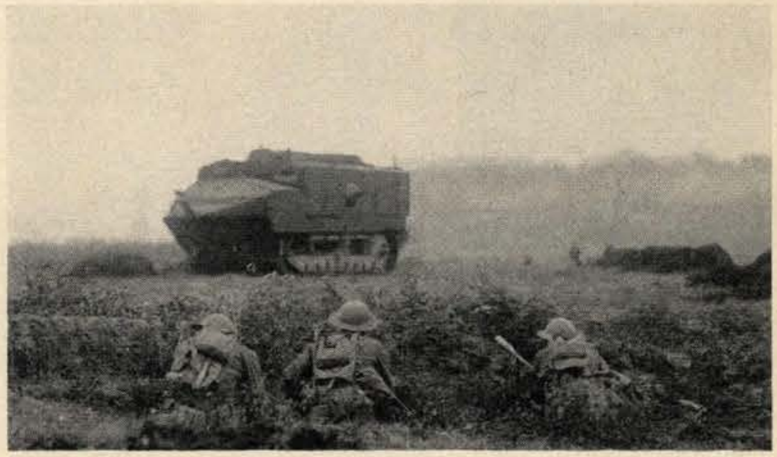
Shown here is the picture of a light Tank Park that was used by the Tank Corps School near Langres, France for the training of American tankers.

All Photos

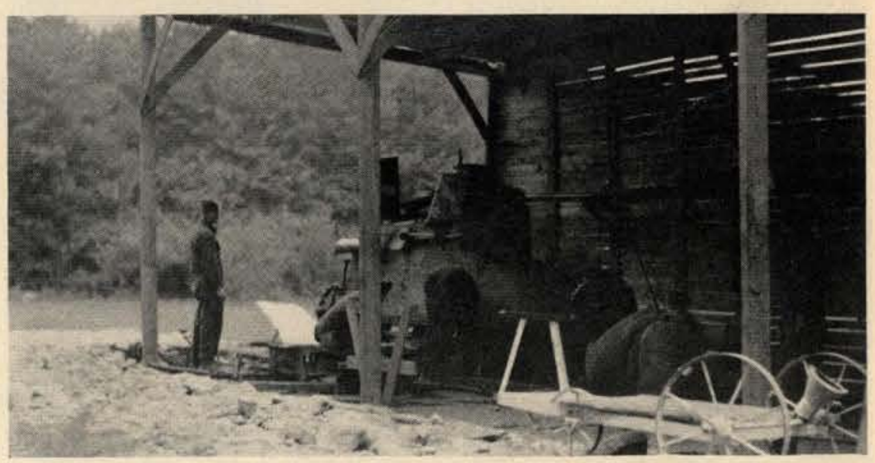
U. S. Army Signal Corps

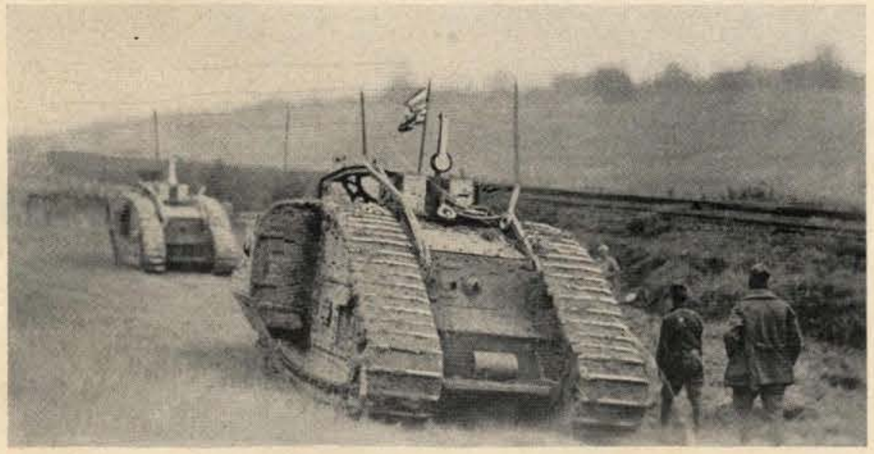
American Expeditionary Forces

This tank of the 26th Infantry, 1st Division is shown maneuvering out in the field and the men lying down to escape enemy fire. May 11, 1918.



This view shows what the well equipped Field Repair Shop of our Tank Corps looked like in 1918. It is a far cry from today's modern shops.





Here is the 301st Tank Battalion. America's Heavies going into action at Souplet, France. Note Old Glory flying from the tank. Oct. 17, 1918.

CARDED

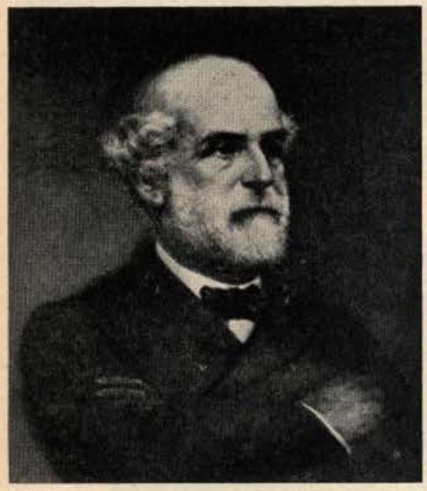
Intelligence—lack of it or misuse of it

INFLUENCE OF MILIT

By COLONEL

THE Second Battle of Manassas has long been a favorite of military students. Its importance, the unusual incidents ocurring, and its controversial features have provided a prolific source for military writers. The court-martial and conviction of Major General Fitz John Porter, a Union Corps Commander, for failure to obey orders on the battlefield and his vindication years afterwards kept this battle before the eyes of the American public long after general interest had lapsed in the details of other battles of the Civil War. Interest in this battle still persists.

Admirers of General Lee have used this battle in particular as an example of his military genius. This is because of his success in splitting his forces in the face of the enemy and their subsequent junction on the field of battle. Henderson[1] said regarding this battle: "If as Moltke avers, the junction of two armies on the field of battle is the highest achievement of military genius, the campaign against Pope has seldom been surpassed; and the great counter-stroke at Manassas is sufficient in itself to make Lee's reputation as a tactician."



Lee

Others have not been so complimentary. Steele,[2] one of our most learned military students, said: "Judged by the results this was certainly a brilliant movement, but judged by any principles of war it

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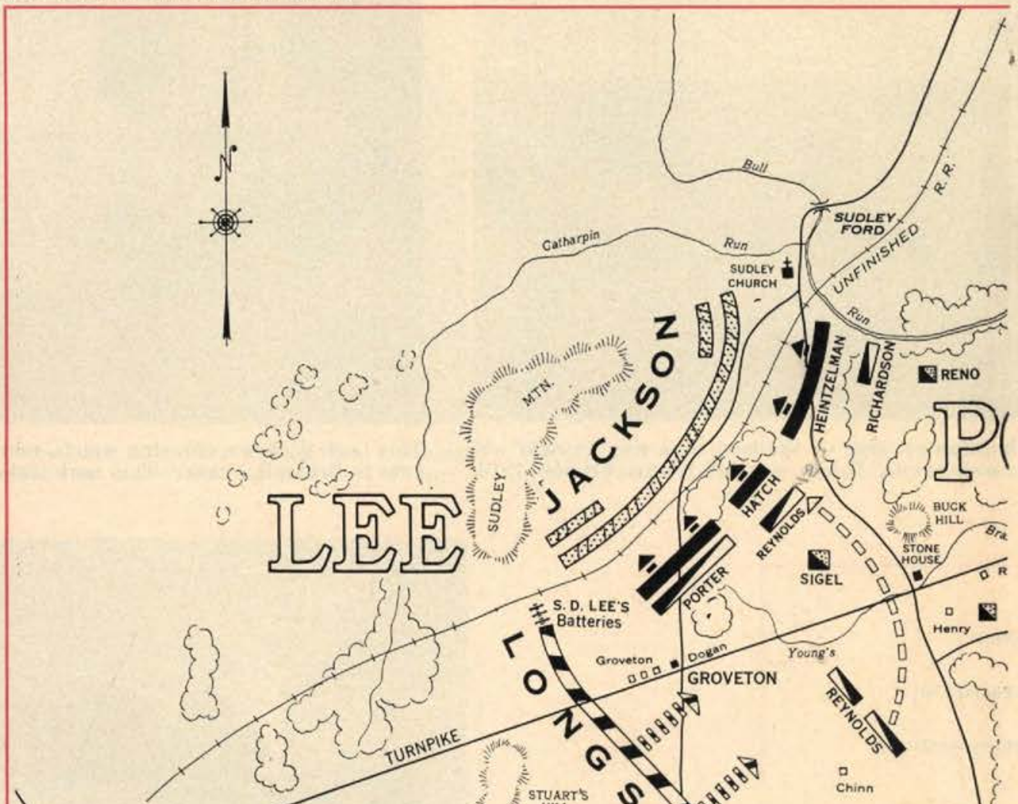
Map—Courtesy National Park Service



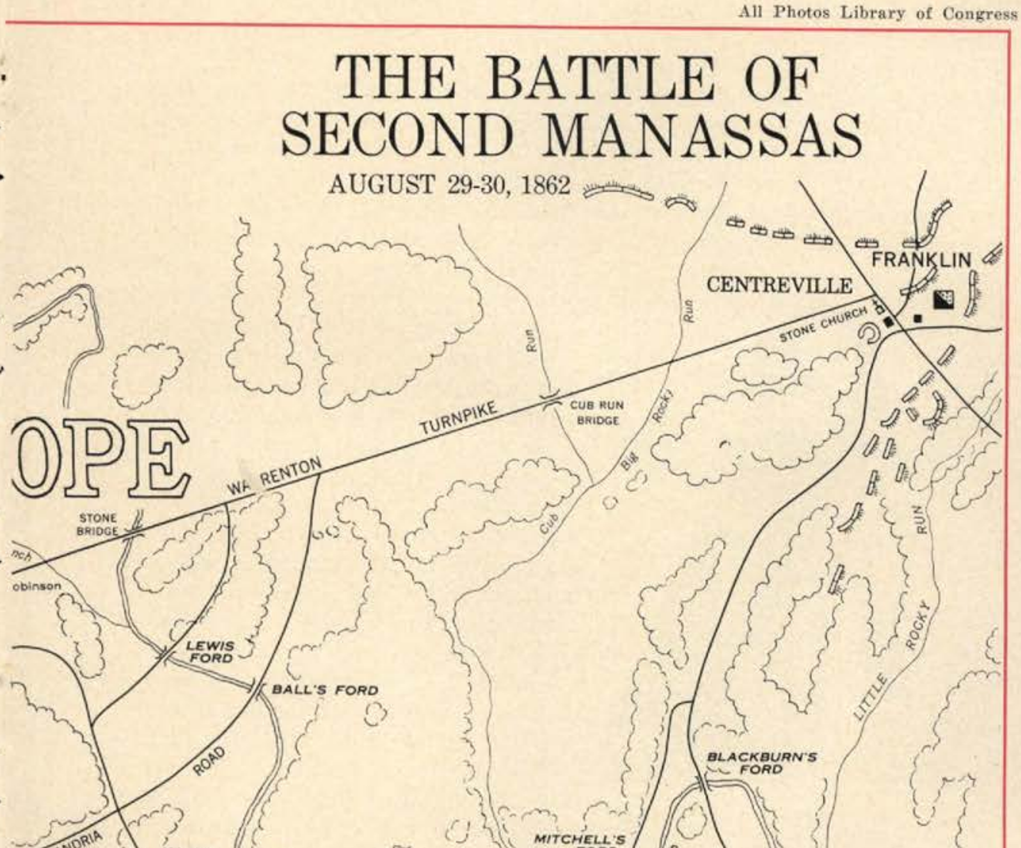
N
LEE
JACKSON
LONGSTREET
SUDLEY MTN.
Bull
Catharpin
Run
SUDLEY FORD
UNFINISHED
R.R.
SUDLEY CHURCH
HEINTZELMAN
RICHARDSON
RENO
P
HATCH
REYNOLDS
PORTER
SIGEL
BUCK HILL
STONE HOUSE
Henry
S. D. LEE'S Batteries
Groveton
Dogan
GROVETON
Young's
REYNOLDS
Chinn
TURNPIKE
STUART'S HILL
WARRENTON
GAINESVILLE
MANASSAS
GAP
WARRENTON
MT. PONE
R.R.
Branch
Dawkin's
LEGEND
MAP SHOWS SITUATION ABOUT 4 P.M. AUGUST 30, 1862
Federal Troops in Attack
Federal Troops on Defense
Federal Troops in Reserve
Confederate Troops in Attack
Confederate Troops on Defense
Trenches
Forest Cover
SCALE
0
2,000
4,000
6,000
8,000
10,000

—can decide the outcome of a battle.

ARY INTELLIGENCE

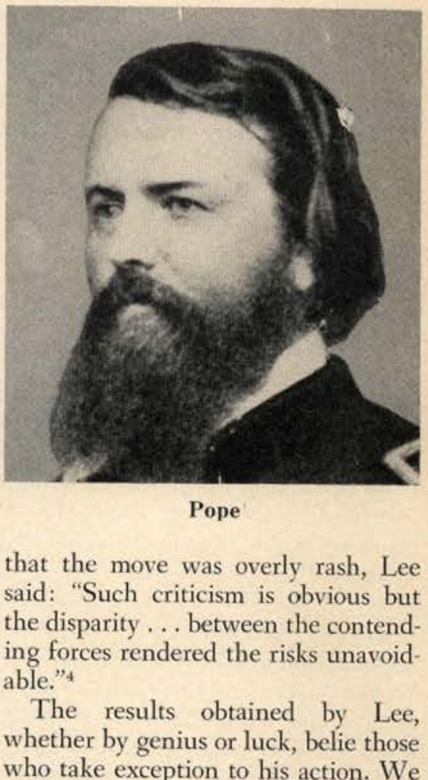
H. V. CANAN

All Photos Library of Congress


THE BATTLE OF SECOND MANASSAS
AUGUST 29-30, 1862
OPE
CENTREVILLE
FRANKLIN
STONE CHURCH
CUB RUN BRIDGE
WARRENTON TURNPIKE
STONE BRIDGE
obinson
LEWIS FORD
BALL'S FORD
Cub Run
Big Rocky Run
LITTLE ROCKY RUN
BLACKBURN'S FORD
MITCHELL'S FORD
ISLAND FORD
BULL RUN
ALEXANDRIA ROAD
FLAT RUN
McLEAN'S FORD
SUDLEY ROAD
R.R.
ORANGE AND ALEXANDRIA
"Liberia" Weir
SIGNAL HILL
12,000 14,000 FEET

was a perilous thing to do. Only Pope's blunders saved it from failure. Not even the successful issue of the expedition can clear General Lee's reputation of the risk he took in ordering or permitting it."

Freeman, a strong admirer of Lee probably covers this controversial aspect of the campaign the best. In his biography of Lee,[3] he lays great stress on the fact that Lee said, in a dispatch concerning the battle, that having the weaker force it was his desire to avoid a general engagement, but by maneuvering in the rear of Pope and attacking his line of communication, to maneuver his opponent who he was not strong enough to fight, into a retreat. Freeman felt that if Lee had any intention of battle he would not have adopted such a dangerous course. Years afterwards when he was told that the move was overly rash, Lee said: "Such criticism is obvious but the disparity . . . between the contending forces rendered the risks unavoidable."[4]


Pope

The results obtained by Lee, whether by genius or luck, belie those who take exception to his action. We must not overlook the truism that a great general must also be a lucky one. Lee's excellent military intelligence immeasurably decreased his risk, while Pope's lack of information and constant misinterpretation of what little he did have, made Lee's success almost inevitable. After almost 100 years, Pope's failures seem to magnify rather than to ameliorate until today even the most sympathetic can find little to condone.

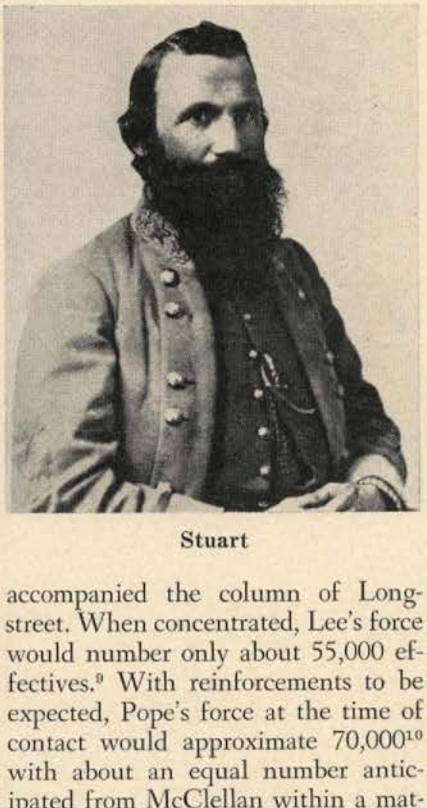
This battle has been covered adequately by many eminent historians.

Little new information on it has become available in recent years although Freeman has recently added much to clarify the picture. It is not the purpose of this article to consider in detail the strategy, tactics or controversial aspects of the campaign but to deal chiefly with the military intelligence measures taken by both leaders. A knowledge of the information available to, or secured by both sides will do much to explain the success and failures of the commanders. To accomplish this, a brief *résumé* of the events leading up to the battle and a description of it will be necessary.

Almost concurrently with the failure of the Peninsula campaign and the failure of three independent Union commands operating elsewhere in Virginia, Pope was given command over the forces of Fremont,[5] Banks and McDowell. The force thus formed was called the Army of Virginia. Pope was given the mission[6] of forming a united force to cover Washington, protecting the Shenandoah Valley and attracting sufficient forces opposite him so as to relieve pressure on McClellan still in the Peninsula. To accomplish this mission he concentrated his forces generally west of Warrenton and pushed southwest toward the Rapidan River.

Upon evidence that McClellan was retiring from the Peninsula, Lee concentrated his army behind the Rapidan opposite Pope with the intention of striking Pope before he could be heavily reinforced from McClellan's command. From this position it was his intention to turn Pope's left on 20 August 1862 with the forces of Generals Jackson and Longstreet, while General Stuart with the cavalry demonstrated on Pope's right. During the preparation, Stuart's Adjutant General, Major Fitzhugh, with a copy of the plans for forcing the Rapidan was captured. With this information plus that secured by a raid on a signal station of Jackson's, Pope retired behind the Rappahannock River on the 19th.

Lee followed closely behind with the intention of attacking before Pope received expected reinforcements. For five days there were skirmishing and futile attempts to cross the river. During the period Stuart raided Collett's Station, Pope's headquarters, where valuable papers and prisoners were captured including Pope's Quartermaster, a loquacious individual who did some indiscreet talking.[7] From the information thus secured and from other sources, Lee learned that Pope would soon be reinforced to such extent that his force would greatly exceed that of the Confederates. This necessitated drastic and immediate measures. Lee decided to dispatch Jackson with Stuart's cavalry attached on the 25th on a sweeping movement to the west via Jefferson, Amissville, Orleans, Salem, White Plains and Thoroughfare Gap with the mission of getting behind Pope and cutting his rail communication with Washington. Jackson's force numbered about 24,000.[8] After making the movement of Jackson, Longstreet was to join him by the same route. Lee accompanied the column of Longstreet. When concentrated, Lee's force would number only about 55,000 effectives.[9] With reinforcements to be expected, Pope's force at the time of contact would approximate 70,000[10] with about an equal number anticipated from McClellan within a matter of days. As has been shown, because of the disparity in strength Lee did not necessarily intend to join battle after his forces combined on the battlefield but only to maneuver Pope out of position.


Stuart

Jackson's movement was noted by Pope but his destination was in doubt. Was he returning to the Shenandoah Valley? Apparently Pope thought so,[11] but he did not take the opportunity offered to crush Lee in detail. He remained behind the Rappahannock with his line extending from Warrenton to Kelly's Ford on the river. He believed that forces from Washington would protect his line of communication and placed too much faith on the arrival of reinforcements from the North.[12] On the night of 26 August Jackson was in Pope's rear on the railroad at Bristoe Station with Stuart at Pope's supply base at Manassas Junction. On 27 August Jackson destroyed the Federal's supplies and moved late that same night toward Groveton. By the 28th he was in position with his back on Haymarket and Thoroughfare Gap.[13]

On the night of the 26th, Pope decided to concentrate about ten miles to his rear near Gainesville. On 27 August he heard of the enemy in his rear but believed that only a small force was involved and dispatched insufficient forces to drive it out. By the evening of the 27th Pope learned that Jackson's whole Corps was behind him and took steps to concentrate his Army around Manassas Junction.[14] This was the beginning of futile marching and counter-marching caused by rumor and incomplete information.[15] Plans were made to move his forces easterly so as to attack Jackson early on 28 August; it was assumed he (Jackson) would remain at Manassas. Instead, dawn found Jackson resting on strong ground to the west, and in such a position as to facilitate Longstreet joining him as soon as he should get through the Gap. Pope ordered a move on Centerville in the mistaken belief that Jackson had retired there. This took a portion of the force across Jackson's front and the inconclusive engagement of Gainesville resulted. Because of a misconception Pope put on this affair, the strategic advantage rested with Jackson the night of the 28th. The battle with Jackson with a major portion of the Union forces should have been fought that day had Pope been an alert commander.[16] Of Pope's action at Manassas, Henderson has said: "Napoleon's doctrine still stands good, that general who is ignorant of his enemy's strength and disposition is ignorant of his trade, then of all generals Pope is surely the most incompetent."[17]

Also on the 28th, a force which had been placed before Thoroughfare Gap without orders from Pope[18] had been pushed back by Longstreet. This force being without orders and direction, together with the force which had met

Jackson, fell back toward Manassas. That evening Longstreet pushed through the Gap after a relatively leisurely[19] march. The same evening Jackson took up a position north of the Warrenton Pike along an unfinished railroad embankment.

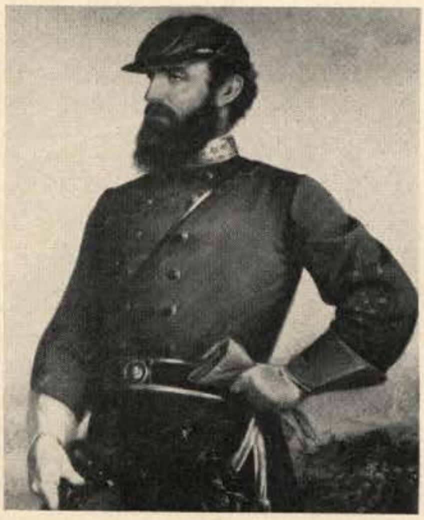
Pope upon learning of the engagement of 28 August near Gainesville, erroneously decided that his force had met the head of Jackson's column in retreat.[20] He ordered a concentration of leg weary and hungry troops to crush the forces of Jackson of the 29th. The arrival of Longstreet's force, the confusion of battle, lack of adequate information of the enemy prevented a full development of the attack, although Jackson was violently assaulted by a portion of Pope's forces. During the day, the 29th, Longstreet moved on the right of Jackson. Little was accomplished by the left of the Union line but this was offset to some extent by inaction on the part of Longstreet.

At dawn 30 August Pope was still under the mistaken idea that the Confederates were in retreat. He still seemed unaware of the arrival of Longstreet but was not unappreciative of that possibility. Disregarding Lee's possible disposition on his left, Pope ordered an attack on Jackson's position with all readily available forces. By mid-afternoon the attack in force was launched with the main effort on Jackson's right and center. Although Pope had approximately 50,000 infantry, he probably had no more than 20,000 in the attack at any one time.[21] When the attack faltered in the center, the Federal left was weakened to add impetus to the center. At that moment Longstreet's Corps, which had been sitting patiently in covered positions on Pope's left, attacked at right angles to the Federal line. Then, to all intents and purposes the battle was over and the Northern forces had suffered another humiliating defeat almost equal to that in the same locality in the year before.

To understand the intelligence picture of this battle, the reader must remember that commanders, on horse or afoot, were bound to the ground. While telegraph was available chiefly in a static sense for strategic or administrative purposes, information on the battlefield was transmitted by foot messenger or mounted courier, or between signal stations by flags or lights. Clouds of dust were still the best evidence of approaching troops.

The methods used by both sides to secure combat intelligence were similar. Personal reconnaissance, observation, patrols, cavalry, reconnaissance in force, spies, captured prisoners and local inhabitants were all utilized. Since the Confederate Army was operating in its homeland, and regardless of the steps[22] taken by Pope to suppress the source, local inhabitants furnished the South with valuable intelligence.[23] For the North this source could not be considered too reliable.[24]

The need of military intelligence was realized by both sides. However, its real importance was not yet appreciated and but little thought had been given to the broader aspects of it. There was no Army school which taught intelligence in those days. Commanders were usually their own intelligence officers, although in stress of battle, intelligence usually takes a back seat to operations.[25] Where Pope was concerned it surely did. Lee had the greater respect for intelligence, and used it more effectively. Freeman says regarding Lee's intelligence procedures: "It is more the remarkable when one remembers his intelligence service at this time was still crude."[26]



Jackson

The formal intelligence plan as known today had not yet been devised. However, Lee was not without some sort of a general plan. He would not move from Richmond until "he had shaped his plan, step by step, as his information accumulated."[27] If Pope had such a plan there is little evidence of it today. He allowed Lee to seize the initiative, and attempted to put out each fire as it arose.

Even the best intelligence is of little value unless it is disseminated both up and down in the chain of command. In the Confederate Army information seemed to be received promptly in all echelons and always seemed to get to Lee with little delay.[28] On the Federal side, there seemed to be much information of the enemy available, but the most charitable view that can be taken is that it did not reach Pope. Early in the campaign, General King, a division commander, had knowledge of Jackson's move from the Peninsula. He reported it promptly but if received, no attention was paid to it.[29] Generals Buford, Porter and McDowell all were aware of Longstreet's march, his progress and disposition.[30] Since McDowell was second in command it is difficult to see why he did not personally press his knowledge on Pope.

Since there was good dissemination of enemy information in the Southern command it is apparent that commanders were also constantly informed of the whereabouts of one another. The subordinate elements knew as well as Lee himself. Lee and Longstreet were kept constantly informed by courier of Jackson's progress during his wide march,[31] and Jackson was kept informed of Longstreet's progress.[32] On the other side Pope apparently never knew where his own forces were,[33] his orders failed to get through or were late, and his subordinates frequently did not know where he was. How could intelligence be disseminated? How could he retain effective control?

For both sides cavalry was probably the chief source on the battlefield of enemy information. Since Pope had been a cavalryman, he should have improved that arm of the Union Army. At the start of the campaign it did seem that the North finally realized the value and proper employment of cavalry.[34] But after Pope joined his command in the field, the cavalry arm declined in effectiveness. When Pope was behind the Rapidan the bulk of his cavalry was observed to be idle, although a cavalry patrol did capture Stuart's Adjutant General at that time.[35] This sortie was quickly overshadowed however, by Stuart's raid, previously mentioned, on Pope's headquarters at Catlett's

Station where the Union commander's personal dispatch book showing strengths, anticipated reinforcements and intentions was captured.[36] The Confederate cavalry also captured many Union couriers during the battle.[37]

The Union cavalry was under Generals Buford and Bayard. Both were competent. Buford was considered outstanding.[38] Initially they performed in an excellent manner. Jackson's flank march was ascertained and reported on, and Longstreet's march was observed almost to the end.[39] When needed the most however, Pope's cavalry broke down and were not available for cavalry missions.[40] They had been thoughtlessly overworked. Its efficiency had also been decreased by the excessive use of escorts and mounted couriers. Pope was forced at one time to use an infantry brigade in lieu of cavalry. Steele said: "It should be *[have been]* the business of the cavalry to keep in touch with Jackson from the time he started the raid until the end. Jackson ought never to have been allowed to play hide and seek with Pope's Army, every move he made should have been reported to Pope by his cavalry. Likewise Pope should have kept himself informed by cavalry of Longstreet's progress . . . In work of the Confederate cavalry, there was a marked contrast. Stuart was always out looking for information of the enemy.[41]

Cavalry action as such will not be described. However, screening is a counter-intelligence mission and one for which cavalry was especially fitted. Together with Longstreet's Corps, Stuart did his part in screening Jackson's movement.[42] When Jackson was resting on 28 August in his position near Groveton, he was screened by Stuart. In their withdrawal from the Rapidan, Pope's forces were skillfully screened by his cavalry.[43] At times the cavalry also played a part in deception and camouflage. For example when Stuart discovered that troops were moving on Longstreet's left from Manassas, he dragged the road to raise dust to indicate that a force was moving out.[44]

McClellan

On both sides spies played a part in securing information of the enemy. The North made greater use of spies probably because of greater wealth and because McClellan based his intelligence system primarily on a civilian private detective, Pinkerton, who used paid civilian spy assistants. Valuable as the use of spies might be, this dependence on a doubtful source caused the Union intelligence to suffer until Hooker at a later date placed Colonel George H. Sharp in charge of the Military Intelligence Bureau. While not desiring to impugn the patriotism of the Northern spy it is felt that they were more venal and materialistic and that the Southern spy had greater patriotic motivation. There are several instances in this battle of the Federal's use of spies. Early in the campaign the Northern forces were left in doubt since time would not permit waiting for the report of spies.[45] Pope was informed however by spies of the concentration of Lee behind the Rapidan.[46] In one instance Pope instructed one of his subordinates to spend as much as necessary to keep himself informed.[47] Perhaps because they were more aggressive in securing combat intelligence, there is not much evidence of the Southern use of spies in this campaign. We find however, when Jackson moved from Richmond spies informed him of the enemy's dispositions.[48]

Geography is an important phase of military intelligence which many are prone to overlook. In this battle the Southern leaders again found themselves engaged in an area over which many had ridden and hunted over prior to the war, and over which many had even fought. The Northern forces were not quite as fortunate and as Henderson says, were ignorant of the terrain.[49] Nevertheless, one of the first things that Jackson did on arriving in the area from the Peninsula was to require his engineer to make a complete map,[50] in several copies, of the area between Gordonsville and Washington. When Lee arrived on the field on 15 August he had available a good map together with Jackson's intelligence reports.[51]

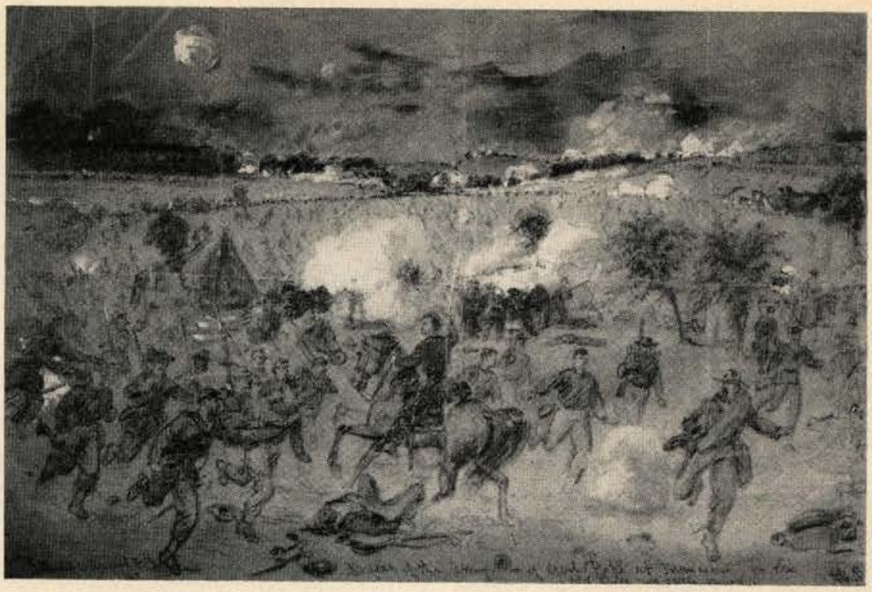
Since the Northern forces did not have an intimate knowledge of the terrain, one would assume that they would be the more aggressive in reconnaissance, both to secure information of the enemy and of the terrain. Such was not the case. The more aggressive Southern use of cavalry has already been covered. The records are replete with instances when Jackson and Lee ordered reconnaissance prior to initiating action.[52] Lee also made personal reconnaissance.[53] On the other hand Pope was not backward in ordering reconnaissance, although there is little indication that he did much himself. But Pope reserved unto himself the right to evaluate and to accept or reject the results.[54] Pope ordered a reconnaissance in force to see if Lee had left the banks of the Rappahannock River, but failed to follow through to see that it was accomplished.[55] But again when matters were pressing and the picture most confused, it appeared that Pope preferred to act by intuition rather than by pushing reconnaissance. Note his failure to keep the flank marches of Jackson and Longstreet under constant observation and to keep Jackson under surveillance after he had once reached Manassas.[56] He criticized General Porter for lack of reconnaissance, but his blind spot regarding it and his personal conceit can best

Porter

be shown by quoting from his personal narrative in *Battles and Leaders of the Civil War*:[57] "... McDowell had gone forward (*sic*) to Manassas Junction where he supposed me to be, to give me some information about the immediate country with which he was more familiar than I could be." Through his own efforts, Pope made little attempt to familiarize himself with the area. During the Second battle of Manassas, Pope's headquarters was at Centreville, ten miles distant from the general fighting of the first day, and the best evidence available seems to indicate that he was seldom more than a few miles from it.

Since telegraph was not then available for tactical use on the battlefield, and since mounted couriers were too slow for even moderate distances other means of transmission of information had to be employed. As a solution, both sides built signal stations on commanding heights. Where necessary the natural elevation was increased by the construction of high wooden towers. These towers were usually manned by officers. An ingenious code was employed to transmit the messages. Telescopes were used to read the signals which were sent by flags, rockets and torches or other lights. Not only did these stations transmit information but by virtue of their locations on commanding terrain, officers at the stations were able to secure excellent observation of the enemy's movements. Thus Pope's camps behind the Rapidan were visible to Jackson's signal station on Clark Hill and every movement was noted.[58] It was this signal station which was raided by the Union forces thereby giving Pope additional information of Lee's intentions.[59] Jackson's raid around the left flank was first discovered by Pope's signalers but of course Jackson's destination could not be determined by them.[60] To supplement these signal stations in their observation mission, balloons had been employed, chiefly by the North, in the Peninsula Campaign, but there is no record of their use in the Manassas battle.

As in modern warfare, prisoners of war and captured documents were utilized to secure information. Although the Confederate record indicates more information secured from this source, Pope's capture, already mentioned, of Stuart's Adjutant General enabled Pope to retire from an untenable position without loss. This probably compensated for the Confederate's gain when Captain John S. Moseby, later of Ranger fame, was exchanged and returned to the Southern command with information gained at Fortress Monroe of Burnside's impending departure from the Peninsula. In an earlier phase of the campaign, Jackson was able to learn of the arrival of Sigel's Corps from a prisoner of war. Also in the early phase of the operation, a northern deserter, an Englishman, stated that McClellan had embarked for a move and three other deserters gave information that Burnside had reached Fredericksburg.[61] This made it easier for Lee to decide to move from Richmond.


Pope's defeat on the 30th of August.

The capture of Pope's headquarters at Catlett's Station was probably the most important intelligence scoop of the campaign. However, during the main battle, captured information kept Southern intelligence current. On the 27th Stuart captured a dispatch of Pope's which showed that Pope was marching on Manassas.[62] On 28 August the capture of Captain Gaither, a courier carrying dispatches, gave proof of Pope's concentration at Manassas.[63] During the battle proper General Hill learned from captured dispatches that it was Pope's intention not to retreat but to attack Jackson.[64]

The recapture of a Union soldier had a most important influence on Pope's actions. The man had been captured by Jackson's forces but had been recaptured on 29 August. The soldier claimed that the Southern officers had said that Jackson's Army was retiring to join Longstreet. Pope believed this in spite of other evidence that Longstreet was in position to attack.[65] The report of this soldier was an important influence on the outcome of the battle. Could he have been an unintentional part of a plant?

Psychology and propaganda, two facets of military intelligence, had their effect in this campaign. Shortly after assuming command of the Army of Virginia on 26 June 1862, Pope issued a series of proclamations and orders. One, a pompous, bombastic, critical address issued 14 July 1862 to his own Army showed that Pope had little knowledge of his fellow man or of human nature. It also revealed his inordinate conceit. Pope stated that he came from the West where they always saw the backs of the enemy, attacked rather than went on the defensive, and studied only the lines of retreat of the enemy leaving their own to take care of themselves. The statement was in bad taste and made a comparison between the courage and achievements of the Western Army and those of his present command. It reflected on the Eastern commands and commanders including the Army of the Potomac. The proclamation created a storm of hostile criticism, both within and without his Army.[66] It harmed rather than fostered the *esprit* so needed by a military force. Consequently Pope entered the campaign under a handicap. On the other side, morale in the Confederate Army was based on regard[67] for and confidence in their leaders, enhanced by success in battle.

Pope also issued a series of orders affecting the local population. While some were legitimate under rules of war, others were unjustified. Probably few were essential, and under the peculiar relationship of the war they were unwise. One prescribed that in so far as practicable, the Army would subsist on the country. Supplies were to be taken by designated officers only when so ordered by commanding officers. Property taken would be vouchered, payable at the end of the war if owners could present testimony that they had remained loyal since the voucher was issued. The wisdom of the last requirement at that time is subject to argument. The South chose to deliberately misunderstand the order and claimed it countenanced indiscriminate pillage with was not so. Another provided that noncombatants were responsible for damage to railroads and required inhabitants within five miles to repair same or pay indemnity. It prescribed measures against guerillas and if soldiers were fired upon from a house, the house would be razed and the occupants treated as prisoners. Since the Union Army was operating in a hostile territory and subject to guerilla action, the order was legal but may have been psychologically unwise. Another order for which there is no legal justification,[68] prescribed that the oath of allegiance would be tendered to all male citizens. Those who took the oath would be shot if they violated it. Those who would not take the oath would be transported South of the Union lines and would be shot as spies if they returned. These orders aroused a feeling of resentment among the Southern sympathizers and intensified their will to resist. They had a great personal effect on General Lee, normally a reserved, self-contained person, who was openly insensed against Pope as an individual.[69] The orders did not have the effect intended and harmed rather than helped the operation. Besides being psychologically wrong they made possible a bitter propaganda campaign against the Northern forces.[70]

A large part of knowing the enemy consists in knowing the enemy leaders. The higher military intelligence echelons of today attempt to catalogue the opposing generals and to maintain useful information concerning them. When such information is available, advantage can be taken of the weaknesses and idiosyncrasies of enemy commanders. While this work was not done during the Civil War, Lee was able to take advantage of his opponents because of his personal knowledge and prior acquaintances with them. He had not known Pope intimately in the old Army, but did know him casually and had no high regard for his abilities. Lee never took Pope very seriously.[71]

In the field of counter-intelligence the North exercised little or no control over those matters which in recent wars have been subject to severe restrictions. The reasons for this state of affairs were quite complex. Since there was no practical way of limiting what was published in the Northern newspapers, they became on the South's principal sources of information.[72] During the Second Manassas campaign Lee, an avid reader of newspapers, learned from the Philadelphia Inquirer that all or part of McClellan's Army was to move from the Peninsula.[73] This news permitted Lee to concentrate in front of Pope with a feeling of safety. From various sources, Lee knew of Porter's move to Pope's command,[74] of McClellan's movements as well as other important changes. During the early phase of the campaign, Northern vessel movements from the Peninsula were carefully watched. True, with the best of counter-intelligence, they would have been hard to conceal. However, when an exchanged Confederate prisoner can bring back detailed information to troop movements, certainly normal care was not being taken by the North to prevent intelligence leaks. The Union order of battle was there to read. Perhaps the exception was when Pope's marching and counter-marching between Manassas and Centerville left Jackson as confused as Pope himself—an expensive bit of unintended deception.[75]

Contrast the Northern lack of counter-intelligence with the rapid movement coupled with secrecy which allowed the South to move and concentrate troops, and keep Northern commanders in the dark as regards Southern strengths and dispositions. Both Generals Hill and Longstreet were moved with their commands from Richmond and were facing Pope before he was aware of it. Pope determined that Longstreet was present only through the lucky capture of Lee's orders already referred to.[76] Jackson's measures to maintain secrecy were perhaps too extreme. For example his orders might read, "March to cross roads at———where a staff officer will inform you which fork to take."[77] He was so secretive that his immediate subordinates were at times kept so much in the dark that they could not operate as effectively as they should. Since Jackson's actions frequently caused resentment and friction, before Hill joined him at the start of the campaign Lee warned Jackson, to no avail, against carrying secrecy and reticence too far.

Deception on the battlefield is allied to counter-intelligence. Every precaution was taken to conceal Jackson's flank movement,[78] and it was also carefully screened by holding Longstreet's Corps in position for about two days and by delaying Stuart's departure as long as possible. While the Northern forces had knowledge of the movement, the measures taken at least confused Pope who did not react as quickly as he should. Perhaps the most effective deception was taken by Jackson as he left Manassas Junction for the Groveton position. His plan for concealing his movement and leading Pope to believe he had retired on Centreville had been carefully thought out. By requiring his divisions to retire by three different routes, one a round-about way through Centreville,[79] and Stuart demonstrating toward Alexandria,[80] he completely deceived Pope who ordered a concentration of his forces at Centreville.[81] True, proper reconnaissance and contact might have obviated this error. Another deception which has already been mentioned and which had its influence in the battle was Stuart dragging the road to raise dust on Longstreet's right on 29 August. This undoubtedly increased Porter's reluctance to disregard troops on his left when ordered to attack Jackson.

Longstreet in his narrative in *Battles and Leaders of the Civil War* said of the Northern leader: "Pope was not careful enough to keep himself informed about his enemy ... Porter had captured two of my men and knew I was in position."[82] That sums up succinctly the Union intelligence. Although the Confederate force seems to have secured more information,[83] to have made better analysis of what it received and to have had better dissemination, the Union forces had sufficient to prevent a debacle provided it had been properly evaluated, analyzed and disseminated also. The Union leaders had information of Jackson's movement. They had knowledge that Longstreet was following through the Gap. They knew on the morning of the 28th that Jackson was near, but Pope misread the signs.[84] He did not have a true conception of the situation from the time Jackson began his movement north. He allowed Jackson to get some 15 miles in his rear with 25,000 soldiers without knowing anything about it.[85]

Pope just could not form the right conclusions from the information he had. First he changed his mind concerning the situation upon receipt of each new report and issued new orders. He led his troops on a wild goose chase. He let the initiative remain with the enemy. Finally he concluded that Jackson was retiring on Centreville and that he was in retreat.[86] In so far as he was concerned there was no more indecision. He had made up his mind and no amount of evidence or new information could change it. On the evening of 29 August he wired General Halleck, his superior in Washington, that Longstreet had been driven west of the Gap.[87] General Porter tried to tell him that evening that the mass of Longstreet's force was on his left, recounting his own observations and those of his officers. But Pope was preoccupied and would assume only that the information was an excuse for disobedience of orders and inaction. He preferred to act on the conclusions formed from his own meager observations and would not listen to officers whose good faith he doubted. As Ropes quaintly puts it, ". . . such a course was extremely culpable; it was thoroughly wrongheaded."[88] Pope accepted the report of the recaptured Union soldier because it agreed with his own preconceived ideas. It was confirmation enough for him that Jackson was in retreat because two Union generals on reconnaissance on the morning of 30 August saw no Confederates. He could thus discard the positive report of Porter concerning Longstreet and the report of General Reynolds that Stuart Hill to the west was occupied by the enemy. Pope had made up his mind that the enemy should retreat, hence he was in retreat.[89] He would not accept nor would he verify reports that Longstreet had arrived.[90]

In conclusion, it can be said that Pope's failure as a general can be attributed largely to his failure as an intelligence officer. Lee's plan succeeded because his reasoning from the evidence was sounder than Pope's. Lee's intelligence service was not as crude as Freeman, or one familiar with modern techniques might be led to believe.

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FOOTNOTES

[1] Henderson, Vol. II, p. 187.

[2] Steele, p. 254.

[3] Freeman, Vol. II, pp. 300, 301, 302, 317.

[4] Henderson, p. 125.

[5] After the resignation of Gen. Fremont, this force became Sigel's Corps.

[6] Steele, p. 239.

[7] Freeman, p. 296.

[8] NMBP, p. 21.

[9] Steele, p. 243.

[10] NMBP, p. 21.

[11] Page 137 of Pope's Corrected Report, Jan. 27, 1863, Report of the Committee on the conduct of the War. Supplement Part III, pp. 104-190.

[12] Ropes, p. 50.

[13] Henderson, pp. 136, 139.

[14] Movement of McDowell's troops toward Manassas was particularly unfortunate as he was in position to prevent a junction of Longstreet with Jackson. Gen. McDowell had full knowledge and appreciation of the situation. Ropes, p. 67.

[15] Henderson, p. 140.

[16] Steele, p. 255.

[17] Henderson, p. 170.

[18] Steele, pp. 245, 246.

[19] B & L, p. 518.

[20] Steele, p. 247.

[21] Henderson, p. 177.

[22] Henderson, p. 87.

[23] Freeman, p. 296.

[24] Henderson, p. 89.

[25] Ropes, p. 75.

[26] Freeman, p. 276.

[27] *Ibid*, p. 259.

[28] Henderson, p. 99.

[29] Freeman, p. 277.

[30] Henderson, p. 170.

[31] *Ibid*, p. 136.

[32] Freeman, p. 316.

[33] Henderson, p. 149.

[34] *Ibid*, p. 82.

[35] Ropes, p. 33.

[36] Freeman, p. 296.

[37] Henderson, p. 143.

[38] Ropes, pp. 16, 66.

[39] Freeman, p. 308.

[40] Steele, p. 256.

[41] *Ibid*, pp. 258, 259.

[42] Allen, p. 224.

[43] Hanson, p. 111.

[44] Ropes, p. 118.

[45] Henderson, p. 89.

[46] *Ibid*, p. 115.

[47] O. R. Part 3, p. 487.

[48] Henderson, p. 84.

[49] Henderson, p. 149.

[50] *Ibid*, p. 111.

[51] Freeman, p. 279.

[52] Henderson, p. 92; Freeman, pp. 263, 319.

[53] Freeman, p. 324.

[54] Henderson, pp. 170, 171.

[55] *Ibid*, p. 137.

[56] Ropes, p. 64.

[57] B & L, p. 469.

[58] Henderson, p. 113.

[59] Freeman, p. 286.

[60] Henderson, p. 137.

[61] Freeman, p. 273.

[62] Allen, p. 225.

[63] *Ibid*, p. 225, B & L, p. 507.

[64] Ropes, p. 75.

[65] Henderson, p. 171.

[66] Ropes, p. 9.

[67] *Ibid*, pp. 35, 59.

[68] Ropes, p. 9.

[69] Freeman, p. 275.

[70] B & L, p. 513.

[71] Freeman, p. 267.

[72] Weisberger, p. 77.

[73] Freeman, p. 280.

[74] *Ibid*, p. 276.

[75] Ropes, p. 75.

[76] Freeman, p. 277.

[77] B & L, p. 502.

[78] Henderson, p. 126.

[79] Hanson, p. 110.

[80] Steele, p. 247.

[81] *Ibid*, p. 256.

[82] B & L, p. 525.

[83] Freeman, p. 345.

[84] Allen, p. 226.

[85] Ropes, p. 51.

[86] Henderson, p. 149.

[87] O. R. Vol. XII, Part III, p. 721.

[88] Ropes, p. 129.

[89] Henderson, p. 171.

[90] Hanson, p. 107.

CARDED

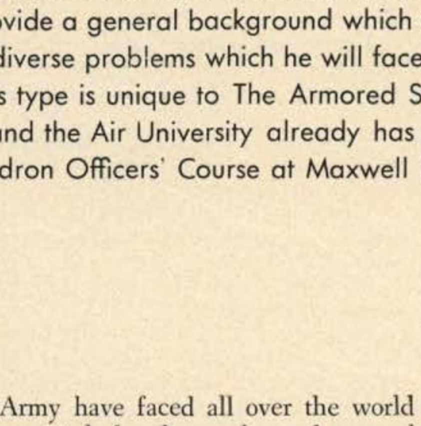
A Professional Reading Program

By CAPTAIN JOHN B. BELLINGER, JR.

A recent addition to the curriculum at The Armored School, which is of great importance to every officer, is the Professional Reading Program. The program—a guided out-of-class reading project—is presented to the Advanced Class at The Armored School and was inaugurated in its present form in the 1954-55 academic year. The program is designed to provide a general background which will enable the Army officer to deal with the vast array of complex and diverse problems which he will face in the rapidly changing situation of the modern world. A program of this type is unique to The Armored School—most of the branch schools have an interest in such a program and the Air University already has a particularly well-developed program in its Squadron Officers' Course at Maxwell Field, Alabama.

ON a dark night in October 1942, General Mark Clark landed from a submarine in North Africa to discern the political situation existing there and to arrange for French cooperation with instead of resistance to our landings. Later when the Darlan problem with its far-reaching political consequences arose, it was General Clark and General Eisenhower who had to make the decisions. This incident did not mark a clear-cut point of entry of the military officer into problems of fields allied to the military. It was, however, an incident that reflected a general transition at this time toward an expansion of the activities of the Army officer into a number of related fields.

Since this event, the officers of our Army have faced all over the world a myriad of such complex and unusual problems requiring an understanding of such diverse fields as politics, world affairs, economics, history, geography, and sociology. During World War II, as Generals Clark and Eisenhower faced political issues in North Africa and Europe, so too did our commanders and their staffs in all other theaters of operations. After World War II, the requirements of the occupations presented new and even more challenging problems, and the conduct of the Cold War has increased the scope and complexity of these problems. Daily our commanders and their staffs are experiencing problems of a new and unusual character. These problems have stemmed generally from three new situations:



U. S. Army

General Dwight D. Eisenhower

1. the new status of the United States as the leader in world affairs and the resultant varied missions of our Army in that connection.

2. the new totality of war that pits whole populations against each other, fighting in all areas of warfare: political, economic, psychological, and military, and

3. the interdependence in the

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A discussion group in session—Armor Officer Advanced Class 1954-55.

U. S. Army

modern world of all fields of endeavor.

The problem of educating the professional officer has long been a difficult one, but it has been rendered even more difficult by this variety of complex assignments that have been handed our Army since World War II. In the branch school, this problem has two aspects:

1. meeting the immediate requirements in military education for the officer in the period prior to his attendance at The Command and General Staff College, specifically staff assignments in the plans, operations, training, intelligence, civil affairs, and military government fields of Army, joint and combined staffs, military missions, and MAAG's, and

2. to meet the long-range requirements of military education for the eventual high command and staff positions of the Army—a continuing process throughout the Army school system.

In order to meet these requirements, the branch school must provide the Army officer with a general background of knowledge so that he is prepared to adapt new tactics and organizations to the new situations that may arise from the inception of new weapons and from new and unusual geographical areas. The officer also must be equipped with an understanding of the backgrounds of military potential in foreign areas in which he might operate, plan, or train.

Assuming that the professional Army officer may be called on to perform almost any mission in distant and unfamiliar areas, how can the service schools best equip him for his task? Since we might say that this problem resolves itself into training the career officer to make decisions in an executive capacity in any of a wide number of fields, then the service school must train this career officer in the general problem solving technique. Further, it has long been a basic error of military men to fight the last war—a natural consequence of the fact that the military man cannot experiment in a laboratory as can the scientist and must instead rely on the laboratory of past experience to fill his experimental needs. Thus, in training the career officer to solve problems, we must be careful to engender also a receptiveness to new ideas. This has long been a tenet of

U. S. Army

General Mark W. Clark

Armor, so that it is a precept that is not new to The Armored School. In essence, then, the problem is that we must train the career military officer to solve wide and varied problems and at the same time stimulate his capability for independent and original thought.

There is a secondary consideration that has further shaped the answer to this basic problem. In order to make sound decisions, the military officer must possess an extensive background of general information, not only in the purely military field, but also in the fields that are directly allied to it. Modern life is so complex that all these fields are interdependent and, particularly in these days of Cold War, are closely bound up with basic military decisions. We certainly could not hope to instruct an officer at a service school in all of the ramifications of these many subjects. Thus, the officer, to properly prepare himself for his future responsibilities, must educate himself—a process which goes on not merely at service schools but throughout the officer's professional career.

Translating these basic needs of the career officer into the specific objectives of a program, The Armored School has set for itself the following objectives to be realized in a long-range program for the professional officers:

1. To *stimulate independent thought* as a requirement for the career officer in order that he may be able to approach the wide and complex problems of the modern army, and that he, also, may be able to think independently on the battlefield—a virtual necessity in the decentralization of the atomic battlefield.

2. To *stimulate self-education* among career officers, as no amount of formal service schooling can completely fill the needs of the officer in the diverse missions of the modern army.

3. To *promote an understanding of varied fields* directly related and inextricably interwoven with the modern military field.

4. To *improve the ability* of the career officer *to communicate his thoughts to others,* since the Army, as does every branch of complex modern society, relies more and more on written and spoken communication.

Certainly, these objectives are a large order.

The achievement of these objectives is the mission of the Professional Reading Program at The Armored School. This program is presented to officers of the Advanced Class, and is divided generally into five activities. These activities are the reading of books of a professional nature, the reading of current events on the national and international scene in all fields of endeavor, the preparation of written reports on the books read, informal discussions of current problems in diverse fields, and the presentation of guest speakers who are prominent in the fields about which the students are reading. The program extends over the eight-month period of the Advanced Course. In each month, the advanced student officer reads a professional book in the reading area of that month, and at the end of the month he is given a short quiz on the current events of the past month. During the month, guest speakers, experts in the field for the month, address the Advanced Class. Finally, toward the end of the month, the students meet in small groups and informally discuss the problems current in the reading area of that month.

The reading areas shown in *Figure 1* have been selected so as to give the student an ever-broadening scope. Within each of the reading areas, the books on the reading list are themselves diverse, thus giving the students the opportunity to cover the field completely, though perhaps superficially, in their discussion groups. A particular effort has been made to offer books of opposing points of view, that are particularly current, and that include a treatment of subjects of importance to the future, such as atomic energy.

READING AREAS

1. **Armor**
2. **Military Strategy, Tactics, and Organization**
3. **Military History**
4. **The United States: Foreign Policy, Economics, Politics, and Recent History**
5. **The Soviet Union and Communism**
6. **The British Commonwealth**
7. **Europe**
8. **Asia**

Figure 1

The reading of professional books is certainly not new to the military profession, nor to any profession. Many of our greatest military leaders have established their own personal libraries and have always taken great pride in the possession of good books. Mrs. Beatrice Ayer Patton, in an article in ARMOR (Nov-Dec, 1952), entitled "A Soldier's Reading," says of General Patton, "He made notes on all the important books he read, *both in the books themselves,* and on reference cards. * * * On the voyage to Africa in 1942, he read the Koran, the better to understand the Moroccans, and during the Sicilian campaign, he *bought* and read every book he could find on the history of that island, sending them home to me when he finished them. * * * We were indeed lucky that an Army officer's professional library is transported free. * * * History, seasoned with imagination and applied to the problem in hand, was his hobby, and he deplored the fact that it is so little taught in our schools, for he felt that the study of man is MAN, and that the present is built upon the past. * * * As I read the books coming out of this war, I knew those that he would choose: authoritative biographies and personal memoirs of the writer, whether he be friend or enemy. No digests!" During his military career, General Eisenhower was always a voracious reader. His hobby was military history, and he also "became an ardent student of international relations and world affairs." "He made a workroom of a second story porch in his house. He tacked up maps and arranged shelving for his books. . . Always he compared theory with the events which the theory presumed to explain, finding often enough that the theory warped the facts. . . He wanted facts. He

MRS. PATTON'S ANNOTATED LIST OF GENERAL PATTON'S FAVORITE BOOKS

Maxims of Frederick the Great.
Maxims of Napoleon, and all the authoritative military biographies of Napoleon, such as those by Bourienne and Sloane.
Commentaries, Julius Caesar.
Treatises by von Treitschke, von Clausewitz, von Schlieffen, von Seeckt, Jomini, and other Napoleonic writers.
Memoirs of Baron de Marbot, and de Fezansec, a colonel under Napoleon: We were translating the latter when he went to war in 1942.
Fifteen Decisive Battles of the World, Creasy.
Charles XII of Sweden, Klingspor.
Decline and Fall of the Roman Empire, Gibbon.
Strategicon, Marcus and Spaulding.
The Prince, Machiavelli.
The Crowd, Le Bon.
Art of War in the Middle Ages, Oman, and other books by him.
The Influence of Sea Power Upon History, Mahan, and other books by him. (*The Trilogy.*)
Stonewall Jackson, Henderson.
Memoirs of U. S. Grant, and those of McClellan.
Battles and Leaders of the Civil War. *R. E. Lee* and *Lee's Lieutenants,* Freeman.
Years of Victory and *Years of Endurance,* Arthur Bryant.
Gallipoli, Hamilton.
Thucydides' Military History of Greece.
Memoirs of Ludendorff, von Hindenburg, and Foch.
Genghis Khan, Alexander and other biographies, Harold Lamb.
Alexander, Weigall.
The Home Book of Verse, in which he loved the heroic poems.
Anything by Winston Churchill.
Kipling, complete.
Anything by Liddell Hart, with whom he often loved to differ.
Anything by J. F. C. Fuller, especially *Generals, Their Diseases and Cures.* He was so delighted with this that he sent a copy to his superior, a major general. It was never acknowledged. Later he gave twelve copies to friends, colonels only, remarking that prevention is better than cure.

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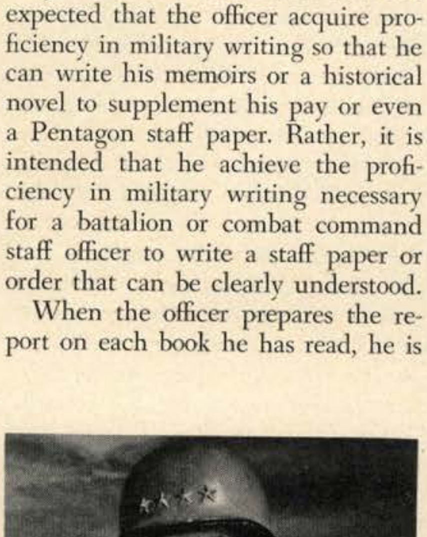
stacked them up in his mind, neatly classified, ready for instant use, and he never had enough of them." General Eisenhower and General Patton were not "longhaired" theorists; they were men of action who still found time to read in the fields related to their profession.

It is hoped that the reading phase of this program will foster in the individual officer a personal professional reading habit which he will carry away from the school with him. In any event, it will impress upon him the importance of reading. In addition, it is felt that the book lists themselves will assist the officer in future years in the selection of books for his professional reading by illustrating the books that are available as well as the range of fields important to him. From this phase of the program, the officer should develop an interest in reading and in current problems in the fields that he reads about, particularly in some of the areas in which he is not already well informed.

At the end of each month the student officer prepares a book report on the book that he read in the previous month. This report is prepared in order to allow the student to express his ideas relative to his reading, to improve his writing ability, and to encourage him to think about the subject matter of the book. It is not expected that the officer acquire proficiency in military writing so that he can write his memoirs or a historical novel to supplement his pay or even a Pentagon staff paper. Rather, it is intended that he achieve the proficiency in military writing necessary for a battalion or combat command staff officer to write a staff paper or order that can be clearly understood.

When the officer prepares the report on each book he has read, he is required to answer in it certain pertinent questions about central issues of the book. As a rule, there are four questions; however, the number of questions may vary, as certain books do not lend themselves to certain types of questions. Generally, these questions are intended to achieve three purposes. First, several of the questions deal directly with central issues or themes of the book in order to ensure their understanding by the student and in order to bring out their importance to him. Second, at least one question is intended to allow the student to express his own thoughts relative to the material presented in the book and to critically analyze a certain issue or theme of the book. Third, at least one question is intended to allow the student to develop his own independent thoughts relative to the solutions of problems of the future that arise from the book. For example, the following questions were asked about General Bradley's book *"A Soldier's Story"*:


U. S. Army
General Omar N. Bradley

> *1.* In your reading of General Bradley's book A Soldier's Story, do you find that fiction is created between General Bradley and the British, particularly Field Marshal Montgomery? If so, discuss three examples.

2. Contrast General Bradley's and Field Marshal Montgomery's concepts of the final phase of operations against Germany.

3. In the light of the foregoing two questions, do you believe that the system of combined command used in the ETO was successful? If you do not, suggest improvements. If you do, explain why.

4. If General Bradley had not been held upon the ELBE RIVER line and the 12th Army Group had taken Berlin and perhaps also Vienna and Prague, what would have been, in your opinion, the result on the current international situation.

The current events phase of the program was developed to keep the officers up to date on the subjects that they are reading about, to provide them with further specific information for their book reports and discussions, to arouse an interest in current world problems, to make them aware of the ever-changing nature of world problems, and to acquaint them with the problems of the areas of the world in which they will soon be serving on their foreign service tours. Each officer is made responsible for keeping himself informed on current events on the national and international scene. The method of accomplishing this assignment is left to the individual officer. In order to ensure the accomplishment of the mission, the students are given a short-answer type quiz each month on current events. The importance of this phase of the program cannot be over-emphasized. In the words of our former Chairman of the Joint Chiefs of Staff, General Omar Bradley: "If you spend only ten per cent of your time in keeping up with what is going on in the world and making up your mind on the issues of the day, you will be amply rewarded. The success of the leadership which the United States extends to the world directly depends on the leadership of its individual citizens."

The discussion groups that meet after each month's reading is completed are an unusual and a particularly interesting part of the program. Here the students are divided into small groups of approximately twelve officers, each group with its own student discussion leader who actively directs the discussion and also selects the topics of the discussion. The discussions are kept informal as it is felt that since the officers are on an advanced level the best results will accrue from this approach. A senior member of The Armored School faculty is present as an adviser to the students, but the discussion belongs to the students themselves and the faculty adviser rarely enters into the discussion unless called upon. His functions are primarily to resolve questions of fact with which the students are not familiar and to provide guidance when necessary. The discussions are frequently heated and are always of wide scope. It is not unusual to hear one group discoursing on the problems of leadership and command in Armor on the atomic battlefield, while another probes the relationship of the three services in our defense structure, and yet another examines the political problems of our European allies and their impact on the plans for the defense of Western Europe. Here again the program strives to secure logical, orderly thinking and presentations with conclusions supported by specific factual information. The mere fact of introducing the problems to the students and the subsequent exchange of information promotes interest and independent thought on the part of the officers.

To further whet the students' interest and to provide them with more specific information, it is a policy of the school to provide frequent guest speakers who are experts in the field under consideration for the month. The guest speaker program is not strictly a part of the Professional Reading Program, but it is coordinated with it. Such prominent personalities as General Ernest Harmon in the field of Armor, General S. L. A. Marshall in the field of Military History, and many others have been guest speakers in the current year.

Some might feel that this Professional Reading Program is striving to train a group of "bookworm" soldiers, "longhair" staff officers, rather than field commanders. Some might feel that undue emphasis is being placed on reading and writing, an emphasis that will breed a multiplication of "paper" soldiers. Nothing could be further from the truth. Every effort is made to keep the program on a strictly practical plane. The aim of the program is not to make the officer erudite, but to enable him to acquire the aptitude for applying knowledge to problems and to meet the unusual situation as well as the commonplace. As Marshal Foch said, "No study is possible on the battlefield; one simply does what one can, in order to apply what one knows. Therefore, in order to do even a little, one already has to know a great deal and know it well."

For those officers not in the Advanced Class who are interested in carrying on a planned personal professional reading program, The Armored School has prepared a booklet entitled *A Book List for the Officer's Personal Library*. This booklet is available from the Non-Resident Instruction Department of The Armored School upon request.

The idea of a Professional Reading Program is in itself perhaps not new, but the broad scope of this program developed at The Armored School is unique in military education. The branch of Armor itself, and thus, The Armored School, has always advocated forward thinking. Under the direction of Colonel Henry C. Newton, the Deputy Assistant Commandant of The Armored School, and Colonel H. G. Sheen, the Director of its General Subjects Department, the Professional Reading Program is another manifestation of The Armored School's attempts to look toward the future. Some years ago, Admiral William F. Halsey said of the future needs of our military services: "We need men who understand the causes of war and conflict, who understand the fundamentals of our aims and ideals, who understand the inter-relation of international policies, internal politics, trade and finance, and the true significance of military power . . . we must find and train such men . . . outstanding military men who have studied to understand the civil aspects of government and international relations. If we *don't* find and train and employ such men in the service of the United States, we will lose our shirts as we have in the past—and then what avails the sacrifice of life, blood, and treasure that we have made?"

The Armored School is attempting to produce such men.

Where Are You?

The biggest problem in our Circulation Department is the complaints from members stating that they have failed to receive their copies of ARMOR. We do not claim to be entirely free from blame but we have found that in the majority of these cases the complainant has failed to send us a change of address. We admit that in the process of changing assignments it is easy to forget a little matter such as this. However this little matter, at our end of the line, mounts up to a big headache and diversion of funds to other sources than the magazine.

During the Summer months, especially, the greatest turnover of personnel takes place; and now that "Operation Gyroscope" is in effect, many units and their personnel will be on the move in the very near future. To insure prompt delivery of your copies of ARMOR, please take the few minutes that it requires to send us your change of address. Don't put it off. Do it now! It is our earnest desire to see that ARMOR gets to our members but we need that change of address to accomplish this. It is an impossible task for our Circulation Department to keep ARMOR coming your way uninterrupted without your help.

Your magazine is sent out as second class mail and the postal authorities do not forward such mail. In some instances the post office can and does furnish us with your new address if you notify them. When they do we immediately send you another copy. However, most of the time they do not do so and this is where our headache starts. We have to pull your address plate from the master file and send you a first class piece of mail hoping that in some way it will reach you. In the meantime, while waiting to hear from you, your plate is gathering dust in the bad address file where it is not doing you or us any good.

Remember we want you to receive your copy of ARMOR. It is our desire to keep you abreast of the latest trends, developments and thinking in our specialized field—mobility in warfare—at all times. You send us your change of address and we will send you ARMOR.

The Editor

CARDED

Career Management Division

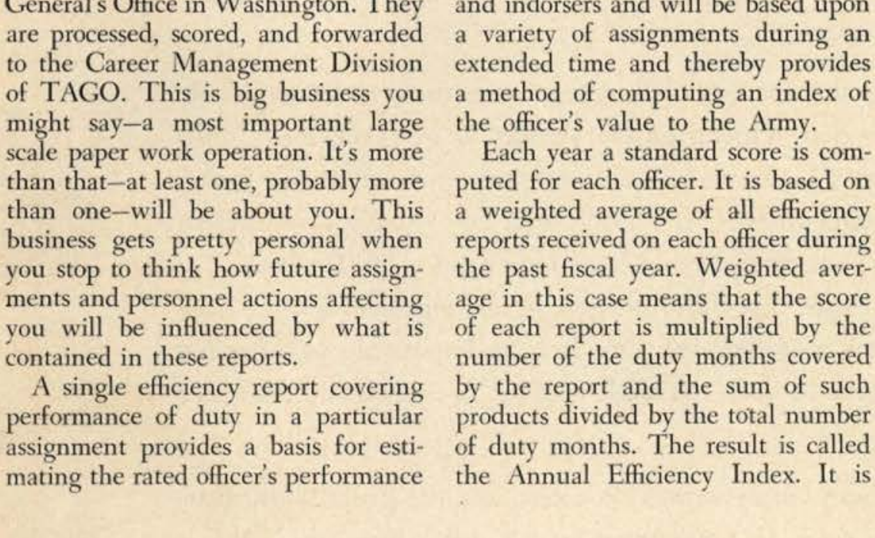
OER's and OEI's

EACH year several hundred thousand efficiency reports converge on The Adjutant General's Office in Washington. They are processed, scored, and forwarded to the Career Management Division of TAGO. This is big business you might say—a most important large scale paper work operation. It's more than that—at least one, probably more than one—will be about you. This business gets pretty personal when you stop to think how future assignments and personnel actions affecting you will be influenced by what is contained in these reports.

A single efficiency report covering performance of duty in a particular assignment provides a basis for estimating the rated officer's performance in this assignment for the stated period. A series of such reports represent the evaluations of a number of raters and indorsers and will be based upon a variety of assignments during an extended time and thereby provides a method of computing an index of the officer's value to the Army.

Each year a standard score is computed for each officer. It is based on a weighted average of all efficiency reports received on each officer during the past fiscal year. Weighted average in this case means that the score of each report is multiplied by the number of the duty months covered by the report and the sum of such products divided by the total number of duty months. The result is called the Annual Efficiency Index. It is purely a statistical device used only for the computation of the Overall Efficiency Index. (OEI). The OEI is computed once a year by dropping the oldest and adding the most recent AEI. Each AEI is multiplied by the number of duty months involved and the sum of these products is then in turn divided by the total number of duty months involved in these ratings of the latest five year period. Therefore, it must be emphasized that the OEI is a comparatively stable estimate of efficiency and that similarly the position of every officer with respect to his fellow officers tends to remain relatively stable.

DISTRIBUTION OF OEI SCORES FOR 1954



The first Overall Efficiency Index was adopted in May 1951. To afford consistent interpretation of the OEI's from year to year, despite changes in rating forms or attrition of low-scoring officers, the Army Standard Rating Scale was adopted. This type of scale has been used widely in the Army for several years, e.g., in the Army Classification Battery. The OEI is an average of the most recent efficiency ratings rendered on a particular officer. The averaging method was used by the Army prior to World War II and was found to be the best estimate of efficiency, when raters disagree as to the efficiency of a subordinate. The index is also computed for lesser periods of service; being calculated on the basis of the scores available. Each index includes the length of duty time upon which the efficiency reports are based. Only complete efficiency reports are used in calculating OEI. Academic letter or abbreviated reports, although an important part of an officer's efficiency report file, are not used in computing the OEI, but are considered in any overall evaluation of an officer's record. All OEI's range from 51 to 150. The middle (median) officer on active duty is assigned an OEI of 100. The symmetrical grouping of scores about the middle is such that approximately two-thirds fall between 80 and 120, about one-sixth above 120 and the remaining one-sixth below 80.

Since the system was adopted, the raw scores on which the OEI is based have been examined yearly to ascertain if they conformed to these specifications or if an adjustment, called a conversion, was necessary to effect such conformation. Year after year, it was noted that there was a small but constant drift in the distribution—the median climbed upwards and the percentage of the scores in the immediate neighborhood of the median likewise increased. The change from one year to the next was so small that a conversion was not made until 1954, when due to a severe attrition of officers, it was clear that a conversion had to be made. A large percentage of these officers had low OEI's consequently the middle raw score climbed rapidly and beyond a point of tolerance. The drift of the scores toward the middle officer also continued, 81% instead of 68% being between an OEI of 80 and 120. The conversion involved lowering the median from 103.3 to 100 and spread the scores so that the stipulated proportions of cases were placed within the various divisions of the distribution (*See charts*). The mathematical adjustment of the OEI did not change the relative position of any officer nor does it represent a change of efficiency evaluation.

Also, the OEI's of all officers on active duty may be interpreted according to the specifications which describe Army Standard Ratings. The adjustment effected is in accord with the pattern announced in memoranda to various personnel action agencies on the Department of the Army level which utilize OEI scores.

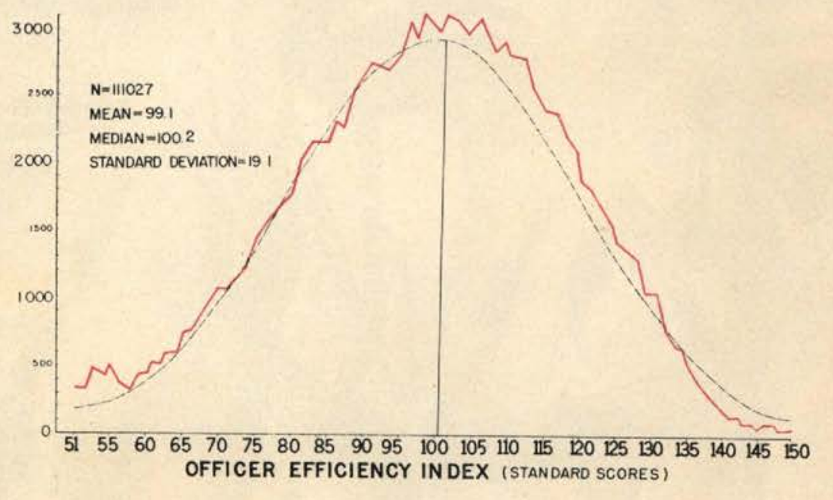
Even though an officer's 1954 Officer Efficiency Index may have decreased in numerical value below that of OEI 1953, it does not necessarily indicate a lowering of his efficiency evaluation. Due to selective attrition the average for the whole corps of officers has been raised and higher standards now prevail. The importance of efficiency reports cannot be over-emphasized. Few things have more effect upon the career development of the individual officer. At the Department of the Army, efficiency reports constitute the chief source of intelligence concerning the capabilities of all members of the officer corps. Consequently, it is safe to say that there are few tasks more important than the evaluation of subordinates. A task of such importance should be thoroughly comprehended and appreciated by all members of the officer corps—by those who rate, those who are rated, and those who use these ratings as a basis for personnel actions.

In accomplishing this important duty, officers are required to be familiar at all times with the regulations on preparation of officer efficiency reports. Those individuals in the Department of the Army who use efficiency reports for various purposes must not only be familiar with the regulations, but being at the receiving end of the funnel, must be ever alert to changes when indicated. For instance, use of the form at the Department of the Army level revealed an area which needed clarification. This resulted in a recent change, Circular 623-1, 8 April 1955, which revised Section IV, DA Form 67-3 (Officer Efficiency Report) so as to read: "Considering officers of his grade, branch and about the same time in grade, what is your opinion of this officer's promotion potential? A recent promotion or a branch transfer requires a comparison with other officers under similar circumstances."

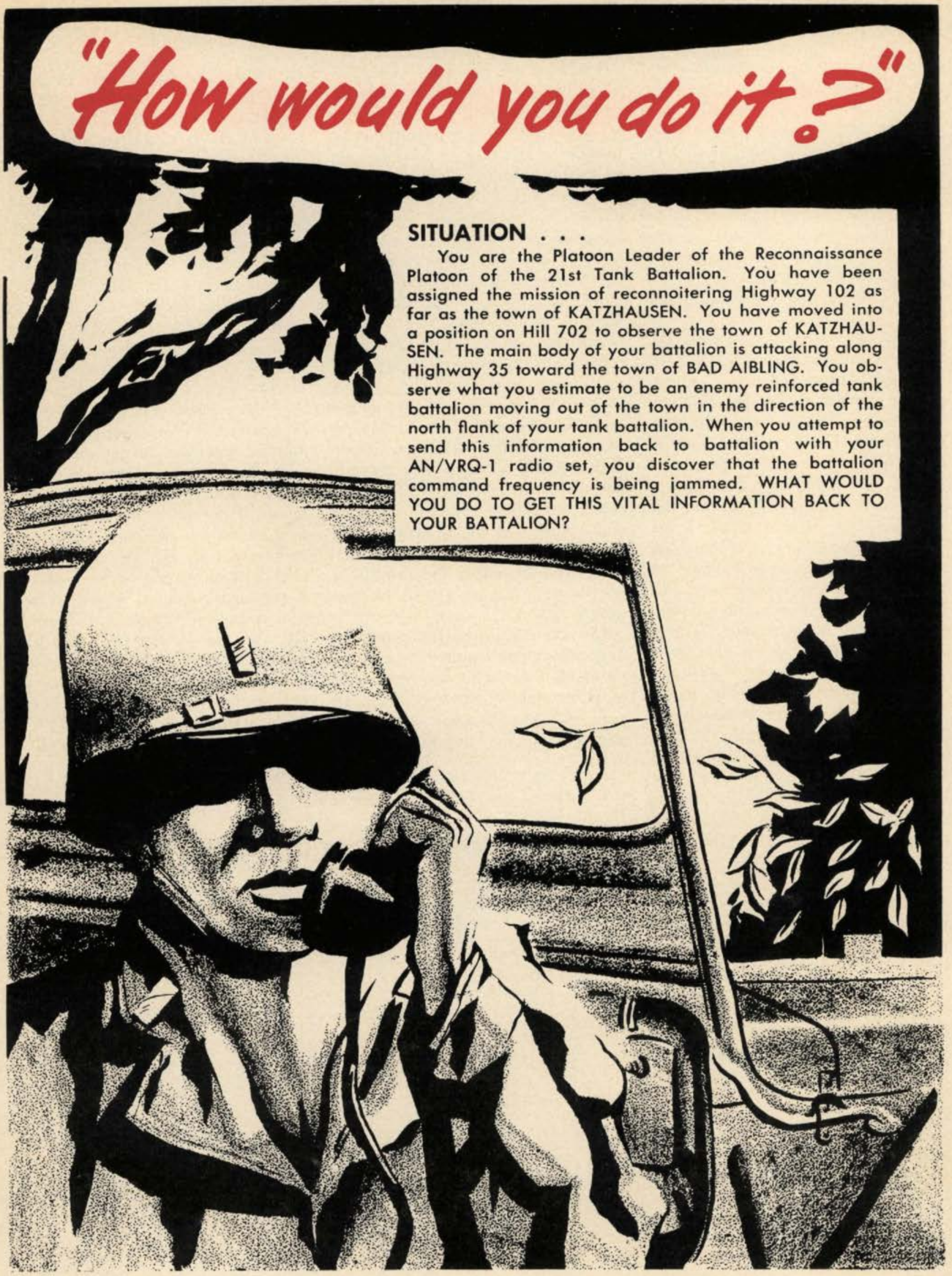
In the final analysis there should be no secret in preparing an efficiency report. If the rating and indorsing officer marks an efficiency report low in Sections II, III, IV, and V, the OEI will ultimately be lowered but if they mark column 4 or 5 in Section II and either 6 or 7 in Sections III, IV, and V, the OEI will ultimately be among the higher group.

Improvement of the efficiency report system is a subject which is under constant study and review to insure objectivity and fairness to all.

ADJUSTED DISTRIBUTION OF OFFICER EFFICIENCY INDEX



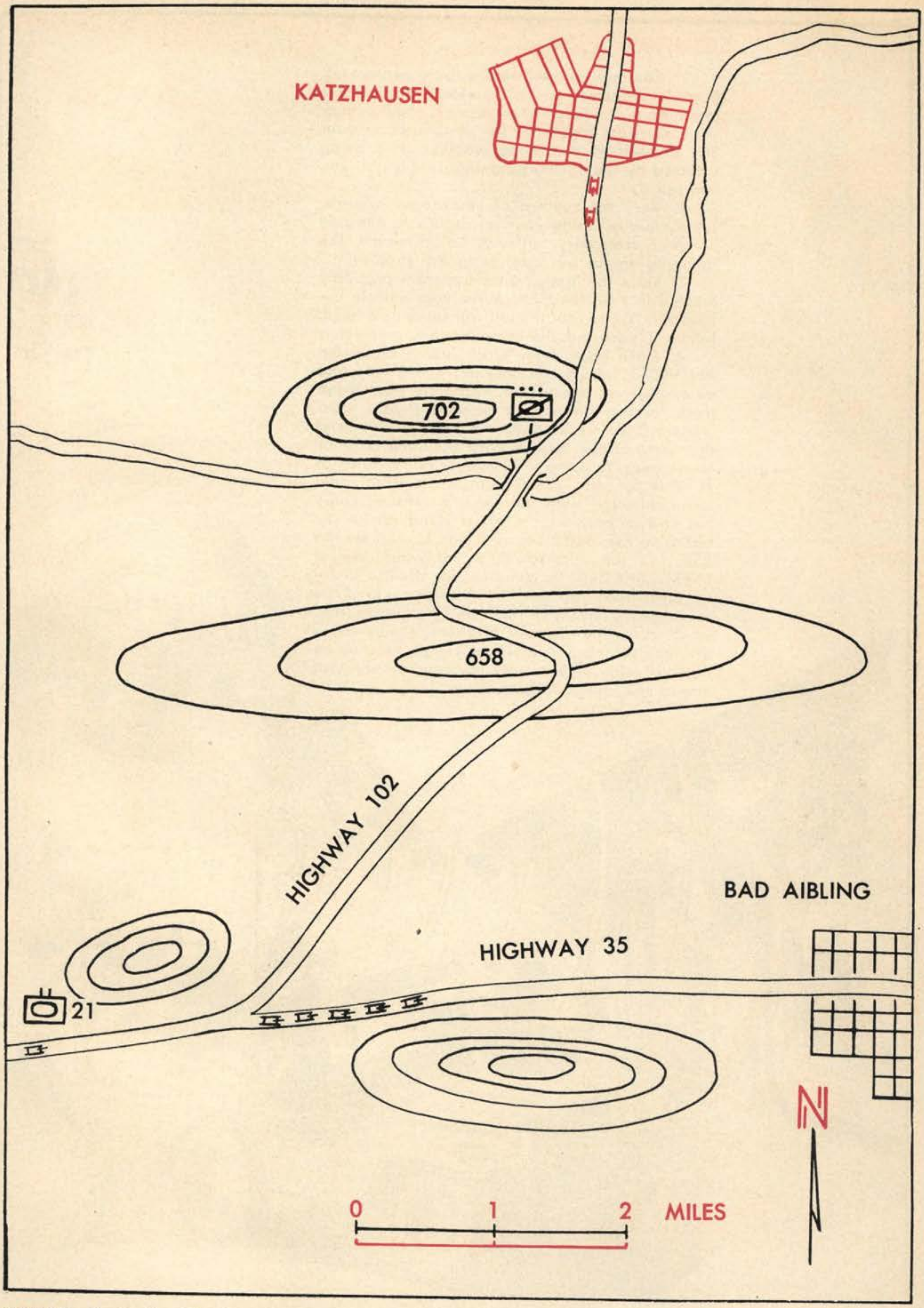
"How would you do it?"



SITUATION . . .

You are the Platoon Leader of the Reconnaissance Platoon of the 21st Tank Battalion. You have been assigned the mission of reconnoitering Highway 102 as far as the town of KATZHAUSEN. You have moved into a position on Hill 702 to observe the town of KATZHAUSEN. The main body of your battalion is attacking along Highway 35 toward the town of BAD AIBLING. You observe what you estimate to be an enemy reinforced tank battalion moving out of the town in the direction of the north flank of your tank battalion. When you attempt to send this information back to battalion with your AN/VRQ-1 radio set, you discover that the battalion command frequency is being jammed. WHAT WOULD YOU DO TO GET THIS VITAL INFORMATION BACK TO YOUR BATTALION?

ILLUSTRATED BY MR. J. H. BAIN


KATZHAUSEN
702
658
HIGHWAY 102
BAD AIBLING
HIGHWAY 35
21
N
0
1
2
MILES

SOLUTION . . .

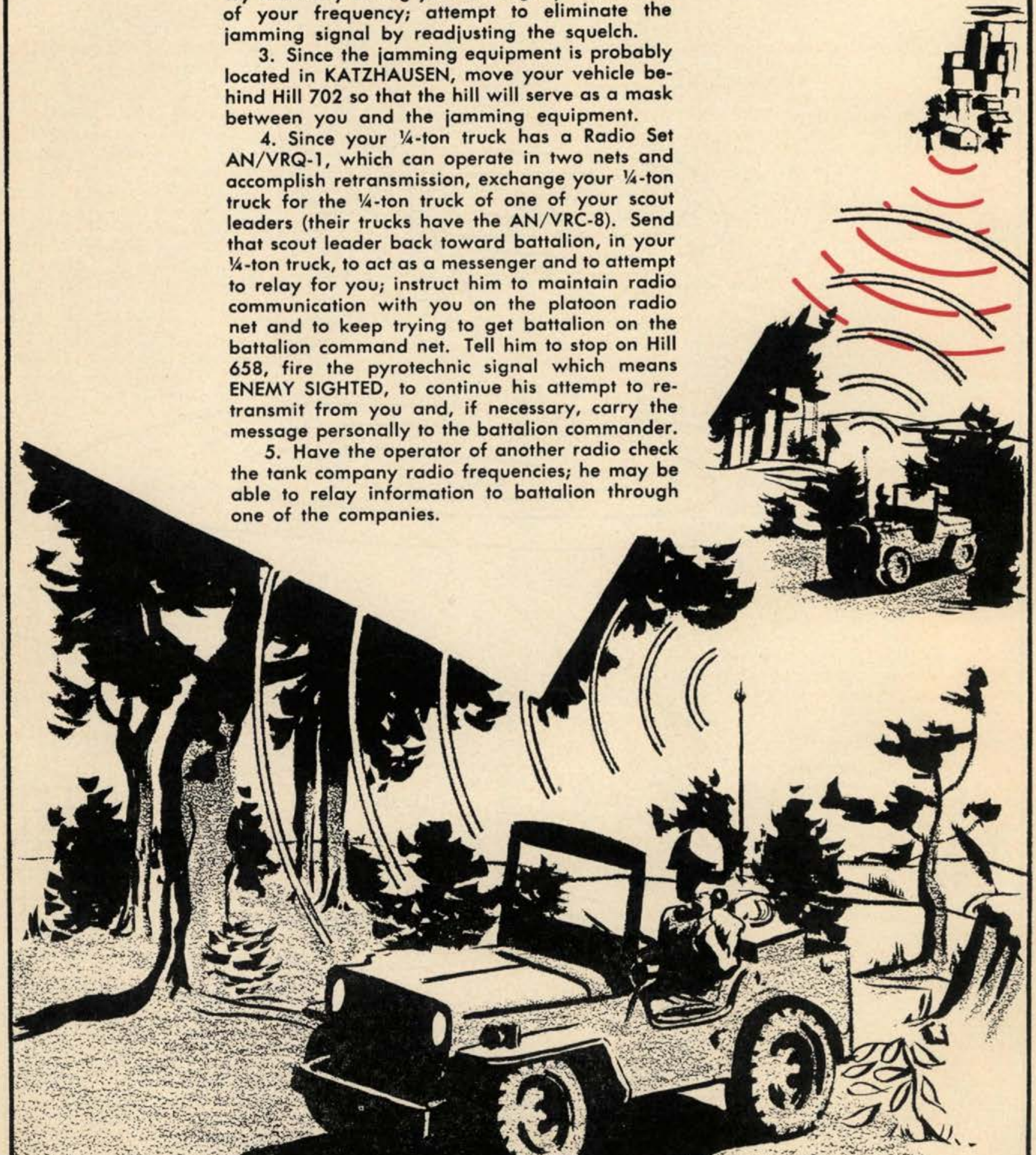
1. Continue to operate the radio equipment. Don't let Aggressor know the effectiveness of his jamming techniques. However, you should check your alternate frequency (as designated in your SOI extract) to determine whether it is being affected by the enemy jamming; if it is not, you can use it.

2. Vary the settings of your radio controls. Try manually tuning your set slightly to one side of your frequency; attempt to eliminate the jamming signal by readjusting the squelch.

3. Since the jamming equipment is probably located in KATZHAUSEN, move your vehicle behind Hill 702 so that the hill will serve as a mask between you and the jamming equipment.

4. Since your ¼-ton truck has a Radio Set AN/VRQ-1, which can operate in two nets and accomplish retransmission, exchange your ¼-ton truck for the ¼-ton truck of one of your scout leaders (their trucks have the AN/VRC-8). Send that scout leader back toward battalion, in your ¼-ton truck, to act as a messenger and to attempt to relay for you; instruct him to maintain radio communication with you on the platoon radio net and to keep trying to get battalion on the battalion command net. Tell him to stop on Hill 658, fire the pyrotechnic signal which means ENEMY SIGHTED, to continue his attempt to retransmit from you and, if necessary, carry the message personally to the battalion commander.

5. Have the operator of another radio check the tank company radio frequencies; he may be able to relay information to battalion through one of the companies.



news from THE ARMORED SCHOOL

Armor Officer Refresher Courses

Recognizing that Armor officers who have had lengthy tours of duty in fields other than Armor often need additional instruction in new tactics, techniques and matériel, The Armored School is conducting two two-week refresher courses.

Course 17-0-12 is designed to provide refresher training for officers who are on active duty. Prerequisites call for field and company grade officers whose assignments are to Armor, and by reason of previous assignment, require refresher training. Applicants should have credit for an Armor Company Officer or Armor Officer Advance or Associate Advance course or be in the grade of Colonel. The requirement for previous schooling may be waived if the officer has recently been assigned to an Armor unit.

Course 17-0-13 (RC) is organized to provide orientation and refresher training for reserve component officers. Prerequisites are that the applicant be in field or company grade, whose branch assignment is to a National Guard or USAR Armor unit, and who is currently not on active duty. The applicant must not have attended an integrated resident course at The Armored School within the past thirty months and should possess a fundamental knowledge of tactics, techniques, and matériel.

U.S. Army Reserve School Active Duty Training

The mobile mindedness of Armor is eminently suited to the latest forward look in the new Reserve program that is before the public and will become the cornerstone for a rapidly expanding Reserve, with added emphasis in all areas of training. In anticipation of this vital rejuvenation of our Reserves, The Armored School has successfully conducted an active duty training period for USAR school students enrolled in Armor.

Standardization of training was the primary objective of the program and this factor assumes added importance with the multiplicity of technical equipment that is characteristic of Armor development. The active duty training period for Reserve personnel is the principal means by which a Reservist may "Keep his hand in" with the ever-changing Armor picture. Consequently, an active duty training "pilot model" for USAR school personnel was established at The Armored School with students from the 1st, 2nd, 3rd and 5th Army areas enrolled in resident instruction on the technical subjects—Communications, Weapons and Automotive. The periods of active duty training were set up in three two-week cycles, from 11 July-13 August with a basic phase conducted in the first period and two advanced phases covered in the latter two periods.

Training during these phases was highly satisfactory and saw the integration of USAR instructors into the Armored School instructor staffs.

It is believed that the final evaluation of this large-scale experiment will conclusively indicate that this system of standardized active duty training at the service school site is the best possible answer to our active training for USAR personnel.

Armor ROTC Camp

For the fourth consecutive year, the Armor ROTC Camp at Fort Knox, Kentucky trained senior Armor ROTC cadets from all over the nation in leadership, practical work with equipment, and in the proper employment of armor. Prior to 1952, two Armor ROTC Camps were operated, one at Fort Knox and one at Fort Hood. In three of the four years, the responsibility for the operation of the summer camp fell on the shoulders of Colonel Clayton W. Wells, Professor of Military Science and Tactics at Norwich University, Northfield, Vermont.

This year 306 cadets from 17 colleges and universities all over the country received intensive training in Armor for a six-week period ending on August 5th. The final week was spent in bivouac and the cadets got an opportunity to participate in field problems including attack and defense of various types of objectives.

Leadership was stressed throughout the six-week period. The students alternated in various platoon, company, and battalion positions, and were given full opportunity to make decisions, issue commands, and to observe the principles of leadership.

This year there are 68 cadets who are Distinguished Military Students, and if they maintain their high standing during their senior year, may be Distinguished Military Graduates.

Key Personnel Changes at The Armored School

Colonel Henry C. Newton, Director of Instruction, The Armored School, has been named Assistant Commandant as Major General Charles V. Bromley moved up to assume command of The Armored Center and pending the arrival of Brigadier General Raymond W. Curtis from France in September.

Other personnel changes include:

Colonel Lawrence E. Schlanser, reporting from Korea where he was G3, 8th Army, is the new Director of the Combat Developments Group. He succeeds Lieutenant Colonel Charles J. Girard, who had been Director for three years and has now been assigned to the 3d Armored Division.

Colonel Donald R. Patterson, returning from Okinawa, has been named Secretary of The Armored School, replacing Colonel Ernest C. Watson, who assumed the Directorship of Nonresident Instruction Department and has since departed for his new assignment as Senior Army Advisor to the Florida National Guard, which with Georgia has a division converting from Infantry to Armor.

Colonel Vincent L. Boylan is the new Director of the Nonresident Instruction Department. His last assignment was with the Armored Replacement Training Center, as a regimental commander.

Colonel Welborn G. Dolvin, formerly G3, The Armored Center, has been assigned as Director, Command and Staff Department, replacing Colonel Richard W. Ripple, who entered the Fall class at The Army War College.

Colonel Arthur L. West, Jr., has joined the Command and Staff Department as Deputy Director. He comes to Fort Knox from the Armed Forces Staff College, having graduated from a five-month course in July.

Lieutenant Colonel Clark Webber, after completing a tour at The Armored School as Deputy Director of Instruction, has departed for an overseas assignment at Orleans Base Section, Orleans, France.

Lieutenant Colonel Elbert C. Waller, former Director of Communications Department, entered the Fall class at The Army War College. He is replaced by Lieutenant Colonel Charles E. Lathy, whose last tour was Chief Signal Officer, Headquarters, Allied Land Forces, Southeast Europe.

NEWS NOTES

Artificial Moonlight

The old 60-inch searchlight of World War II has been adapted for a new role by the Illumination Section of the Corps of Engineers' Research and Development Laboratories, Fort Belvoir, Virginia.

Supplanted by radar for aircraft detection, it has been transformed into a self-contained mobile unit to supply battlefield illumination or "artificial moonlight" for combat operations.

Originally designed for transport in two trailers towed by a pair of 2½ ton trucks, the entire unit has been mounted on a single truck of the same size. The old method of transporting the unit was adequate for anti-aircraft units emplaced in rear areas, sometimes at the same location for days.

Mounting the entire unit on one truck, however, became necessary to permit the rapid and frequent movement required for frontline battlefield illumination.

The new truck is equipped with sides which can be let down to form a platform for the operator. The engine generator set which powers the unit is mounted directly behind the cab of the truck.

Army units achieved much success in Korea by locating the searchlights five to 10 thousand yards behind the area they wanted illuminated and directing the beams at a low elevation.

Light, scattered from the beams, provided illumination equivalent to an almost full moon over an area 800 yards wide and 1500 yards long. Greater width but less illumination was obtained when they defocused the beam.

Since it is directional and can be controlled, the light gives our combat troops a considerable advantage over the enemy.

Searchlights can also be used to illuminate job sites and rear area installations. They may also serve as beacons.

Honest John Battery Assigned Far East

The Department of the Army announced recently that the 5th Field Artillery Battery (762mm Rocket), which has completed training at Fort Sill, Oklahoma, will be assigned to and stationed with United States Army Forces in the Far East.

The battery will join other Army units under the command of General I. D. White, Commanding General of the United States Army Forces, Far East and the U. S. Eighth Army. Assignment of the battery to General White's command is in line with Army policy of furnishing the newest available weapons to Army forces overseas.

The 762mm rocket, called the Honest John, is a long-range artillery rocket. It is designed to provide fire support for ground combat units employing either conventional or atomic warheads.

Army Sends 280-MM Battalion to Far East

The 633d Field Artillery Battalion (280mm gun), which has completed training at Fort Bragg, North Carolina, has been assigned to the United States Army Forces in the Far East, the Department of the Army announced recently.

The Army said assignment of the battalion to United States Army Forces in the Far East, under the command of General I. D. White, is part of established United States policy to make available to its forces overseas the most modern developments in military weapons. In line with this policy, shipment of the battalion has been under consideration for some time.

The Army's largest gun, the 280mm gun, has a relatively high degree of mobility and long range. It is considered highly accurate with either conventional high explosive or atomic ammunition.

TO RETIREMENT

Lt. Gen. Hobart R. Gay

Army Aviation School to Benefit from New CONARC Board

Organization by Headquarters, Continental Army Command, of a new development and test agency at Camp Rucker, Alabama, home of the Army Aviation School, was announced today by the Department of the Army.

The new agency will be known as Board Number 6 of the Continental Army Command.

This places the six CONARC Boards at the sites of centers having primary interest in specific development and test fields.

Board Number 1, CONARC, concerned primarily with artillery equipment, is located at The Artillery Center, Fort Sill, Oklahoma and works in close proximity with The Artillery School. Similarly, Board Number 2 CONARC, concentrating in Armor equipment, is located at The Armored Center, Fort Knox, Kentucky, home of The Armored School; Board Number 3, dealing with Infantry equipment—is at The Infantry Center, Fort Benning, Georgia, home of The Infantry School; Board Number 4 —Antiaircraft Artillery and Guided Missile equipment—is at Fort Bliss, Texas, site of the AAA and Guided Missile Branch of The Artillery School, and Board Number 5—communications, electronics and Airborne equipment—is at Fort Bragg, home of XVIII Airborne Corps and the 82d Airborne Division.

These six development and test agencies are under the command of General John E. Dahlquist, Commanding General, Continental Army Command, with Headquarters at Fort Monroe, Virginia. The Boards work directly with the Development and Test Section, CONARC, headed by Major General J. H. Hinds, Assistant Chief of Staff for Development and Test, in testing weapons, equipment and matériel used by the Army in the field.

Convertiplane Being Developed for Army Flown for First Time in Texas

The Bell XV-3 convertiplane being developed for the Army has been flown for the first time in Texas following USAF Safety Flight Inspection Board approval of the revolutionary craft for flight testing, the Department of the Army announced recently.

Developed by Bell Aircraft Corporation and the USAF Air Research and Development Command for the Army, the XV-3 is a tilting rotor type convertiplant designed to combine the preferred performance features of the helicopter and the airplane.

Employing combination three-bladed rotor-propellers mounted on the ends of a stubby, 30-foot fixed wing, the XV-3 can take off, hover, and land like a helicopter. Once the desired speed and altitude is reached, the pilot can tilt the rotors forward, approximately 90 degrees, into a conventional propeller attitude for high speed and long distance flights.

Flown for the first time by Bell's chief helicopter pilot, Floyd Carlson, the Army XV-3 rose straight up from the ground to a height of 20 feet and maneuvered about in every direction as a helicopter. Military men watching the initial flight demonstration said that the new craft was "impressive" and performed very well for this early stage of the program.

Later in the exhaustive flight test schedule, numerous flights will be made during which the rotor-propellers convert from the helicopter to the airplane position and return.

COMMAND CHANGE

Maj. Gen. William N. Gillmore
CG, 4th Armored Division

According to Bell engineers, the conversion process is a smooth operation requiring from 10 to 15 seconds with no loss of speed or altitude. The pilot can safely stop or reverse the conversion at any point and maintain stable flight with the rotor-propellers in any intermediary position.

Bell Aircraft's tilting rotor design is expected to offer the Army an extremely mobile, flexible aircraft.

According to Assistant Secretary of the Army Frank H. Higgins, aircraft like the Bell XV-3 will be of great value in gaining the mobility which the Army must have in modern warfare.

Today's helicopter seldom is capable of more than 110 mph speeds while the convertiplane can travel cross-country as fast as a DC-3 and, when it gets to its destination, any clearing serves as an entirely satisfactory landing field.

The aircraft may be used to carry four persons, or two litter patients and a medical attendant, in addition to the pilot.

The Aero-Pallet Cushion

A newly developed collapsible rubber bag that resembles a barrel will greatly increase the striking power of paratroops and may help the joint efforts of the Air Force and Army to deliver more equipment to ground troops.

Designed and manufactured by The Firestone Tire & Rubber Company, the "Aero-Pallet Cushion" absorbs the landing shock in parachute drops of heavy weapons and equipment.

Four to 10 air cushions are placed underneath a magnesium pallet carrying up to 25,000 pounds of equipment. When such a load is dropped from a cargo plane, a rush of air fills the cushions, before automatically closing diaphragms that keep them inflated. On hitting the ground, compressed air in each cushion bears the brunt of shock, then forces out a rubber cork-like plug which decompresses the bag-like and air-filled pillow.

Air Force tests at El Centro, California, have proved that such air bags cut ground impact by two-thirds. A 1,000-pound load hits with a force of 12,000 pounds instead of 35,000.

The reduction in landing impact means that equipment such as jeeps, bulldozers and weapons now can withstand greater landing forces under high wind conditions.

The Aero-Pallet Cushion is made of strong, light-weight nylon tire cord covered with rubber. It is reinforced with strands of steel bead wire, the same as used in tires.

By merely replacing the cork-like rubber discs that pop out on landing, the Air Force can obtain as many as 20 safe drops with each Aero-Pallet Cushion.

TOP COMMAND CHANGES

Maj. Gen. Ridgely Gaither
G2, Department of the Army

Maj. Gen. Paul D. Harkins
G3, Department of the Army

Lt. Gen. John H. Collier
Commanding General, Fourth Army

FROM THESE PAGES

65 Years Ago

A discussion as to the relative value of revolver and saber will not be attempted. Both weapons are indispensable, each within its proper sphere. On any ground, horses and men being equal in strength and training, with plenty of room available for open order, the pistol will prevail over saber or lance—in fact one man with plenty of room ought to kill or wound at least three men armed with lance or saber. When cavalry charges in compact masses or in defiles when they must get through and cannot deploy, or on causeways over marshes, sabers will be wanted to push an enemy back. Revolvers would not be used under such circumstances.

At present, there are very few of our troopers capable of using either weapon. The reasons generally advanced for the lack of practice are not conclusive, for with all the complaints of "detailed" men there is ten times more time thrown away than used. There seems to be a fear that if the men are made to return the amount of hours in work, that they are paid for, that they will desert or will not reenlist, or at any rate that it will be disagreeable to them. Leaving aside the men, why are our officers so deficient in the use of their arms?

We have numbers of men who wear badges of sharpshooters and even medals; but we all know that beside them are men who, for equal efficiency, the country pays but thirteen dollars a month. An officer should be able above all else to use the weapons of an officer, not that he should be a fencing master or pistol "sharp" alone, but when one sees the number of physically incapable officers and knows that the reason for their being so frequently arises from causes not incident to their hard service, one sighs for such men as Sir Frederick Roberts, who, as Captain Mills tells us, is, at fifty-five years of age, able to compete with his youngest officers in physical contests.

Revolvers and Revolver Practice

LT. POWHATAN H. CLARKE

50 Years Ago

The use of automobiles in all the government departments is becoming more and more general, and it is indisputable that in the more or less distant future, there will be no other method of traction or of locomotion. It is not my intention to recall here all the uses to which vehicles driven by motors can be put. I desire simply to examine the importance of automobiles from a military standpoint.

For several years, now, automobiles have been in use in the army, especially by staff officers. It is well known that nearly all generals, when they are at maneuvers or in the field have a certain number of automobiles at their disposal, which assist them greatly in performing their duties. Think of the time it used to take a commanding general when he had to visit on horseback the scattered positions occupied by the brigades and regiments of his command. A large part of his day was given up to this inspection of the terrain, and while he was away work and plans which demanded his presence at headquarters had to be suspended. Today, with an automobile, how much simpler the whole question becomes. In an hour the field officer can personally assure himself that all his directions have been carried out, and then has all the leisure time he needs to devote to other matters.

For the present the automobile's sphere of usefulness in the army is limited to just about this; but how that sphere will be extended in the future!

Automobiles in the Army

LT. FRANK P. LAHM

25 Years Ago

Its tactics must be primarily offensive: a straight drive to its objective, either in attack or in counter-attack. The shock component will drive rapidly through the enemy's defense, breaking up his defensive organization of machine guns, infantry weapons, anti-tank guns and wire, continuing through his supporting artillery to the objective of the force, whatever it may be; then reforming behind its holding component, possibly to meet the enemy's counter-attack.

The artillery component, advancing by bounds from one firing position to another, will support the stages of the attack. Its principal targets will be those weapons of the enemy most dangerous to the shock component, viz. anti-tank guns and enemy tanks. In the last stage it will move to positions to support the holding component. Almost coincidently with the advance of the shock component from its assembly positions, the artillery will advance rapidly to previously reconnoitered positions for direct fire. From these it will open on the enemy's anti-tank guns as the latter expose their locations by fire. To the objection that such tactics will expose the artillery to destruction by the enemy's supporting artillery, it may be answered that the time the attack lasts will be a matter of minutes, not of hours, and any counter-battery by the enemy will draw his fire away from the shock component.

The holding component, following the shock component closely, will complete the overthrow of the enemy on his organized position, and the capture of his supporting artillery within its zone. It will then move to the final objective which it will organize and hold, supported by the artillery component, providing a pivot behind which the shock component may rally, reorganize and prepare to meet the counter-attack of the enemy's mechanized force.

Tactics of a Mechanized Force: a Prophecy.

LT. COL. K. B. EDMUNDS

10 Years Ago

The major combat roles for armored forces are: the penetration; the turning movement; tank versus tank. The Peneration. Penetration is habitually preceded by artillery preparation—with or without an air strike. Armor alone has not as yet been able to fight its way through an appropriately defended position. Since the Spanish war, and throughout World War II, a path completely through the hostile position has had to be blasted by the artillery for the armor to pass through.

The width of the front to be blasted varies, but is usually from one to two miles. Depth is limited by the nature of the defenses, the artillery range, and the mission. The time required depends on the number and kinds of targets within or close to the area, and the gun range.

* * * * *

The mission of armored forces in breaking through may be to turn to right and/or left and roll up the enemy's lines, as at El Alamein. It may be to separate an enemy front and envelope one wing, as in Belgium in 1940, or it may advance deep into the enemy's rear areas, as the American break-through in Normandy in 1944.

As long as the artillery can furnish supporting fire without changing position, it covers the flanks and front of the armor passing through the gap. When the armor arrives beyond the range of artillery, it depends upon its own batteries and the air force for fire support.

Armored Forces

COL. CONRAD H. LANZA

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"I LIKE GENERALS SO BOLD THAT THEY ARE DANGEROUS."

—Pershing

PORTRAIT OF PATTON. By Harry H. Semmes. 300 pp. Appleton-Century-Crofts, New York City. $6.00.

Reviewed by RICHARD O'CONNOR

AFTER serving a tour of duty at Schofield Barracks from 1925 to 1928, a cavalry officer named Major George S. Patton, Jr., listened to his commanding officer read a rather derogatory report on his career at the Hawaiian post, ending with the remark, "This man would be invaluable in time of war but is a disturbing element in time of peace." The Major, characteristically, took this prophetic remark as a compliment.

And it is characteristic of this "portrait" of General Patton, written by one of his subordinates in the two World Wars and an intense personal admirer of his subject, that all the diverse elements which made up the foremost American commander of armored forces are dutifully laid before the reader. Harry H. Semmes, the author, is too conscientious to present a one-dimensional, hero-worshipping biography of General Patton;

U. S. Army

he shows the shades of black and white and gray that characterize all men. Semmes states at the outset that he intended to write a memoir of Patton as he knew him, rather than a formal history, using his own recollections and many hitherto unpublished letters to capture his difficult subject.

To the civilian public General Patton's character and personality have solidified into a stereotype of sorts—the gun-slapping, fox-hunting, polo-playing, profane and prayerful cavalryman who blustered his way to high command.

This book will show the other side of the coin. Semmes tells many anecdotes and quotes many of his letters and passages from his diary to show General Patton's private tenderness and thoughtfulness. When he visited the amputee ward at Walter Reed Hospital during his quick trip home in 1945 shortly before his own death, he wept and could only say, "Men . . . if I had been a better general most of you wouldn't be here." And he wrote in his diary under the date of 15 April 1943 the hard-boiled distillation of the lessons he learned in the North African campaigns, concluding that most men in war are "too damned polite. War is very simple, direct and ruthless. It takes a simple, direct and ruthless man to wage war." But in the next paragraph, he writes that "before leaving Gafsa I picked some nasturtiums in the yard . . . and went to the cemetery to tell Dick (Major Richard Jenson, his ADC, killed in action) goodbye."

Lieutenant, 1916

U. S. Army

There was always that juxtaposition of elements in Patton's temperament, tenderness and ferocity living side by side. Having chosen a professional soldier's career since the day he buckled on a wooden sword, he steeled himself to its consequences; he was always testing his own courage, demanding the utmost of himself, whether riding a polo pony or a tank.

He never forgot the words of General Pershing, under whom he served on the Mexican Border and in France during the First World War. Somewhat like a dutiful son, Patton went to see Pershing, then aged and feeling neglected, before he left to command a task force in the North African invasion. Speaking to and of Patton, Pershing said, "I like generals so bold that they are dangerous."

Contrary, too, to the conception of George S. Patton as simply a hell-for-leather type are the facts of his military education. Patton, of course, concerned himself more with the clash of arms than that of staff intellectuals, but he received as sound a military schooling as any American soldier could obtain. He spent one year at the Virginia Military Institute, then attended West Point, graduating with the Class of '04. He studied at the French cavalry school before the war and the tank school during the war.

Ace photo

THE AUTHOR

Brigadier General Harry H. Semmes, Retired, served under General Patton in two World Wars, receiving three DSC's for gallantry in action. He has been an intimate friend of the Patton family since World War I. A graduate of Dartmouth College and post graduate in law of George Washington University, he is practicing law in Washington, D. C. He has been a member of the Armor Association for many years.

In 1923 he was graduated from the Advanced Course, Cavalry School Fort Riley; the next year from the Command and General Staff School, and in 1932 from the Army War College. In his enthusiasm for the developing role of armor, he was an "unofficial" member of the tank board after the First World War. He served in the Office of the Chief of Cavalry and as a General Staff officer in the Hawaiian Department.

One of the more fascinating (and exhaustively treated) portions of this book is the account of the development of U. S. armored forces, out of the old horse cavalry by Renault-Christie-Chrysler. Patton's own career paralleled—and speeded—this development. (Not to mention the special and valiant contribution of Mrs. Patton, the former Beatrice Ayer. Shortly after the First World War, presiding over a demonstration of the new Christie light tank, he had his wife ride one of them when other officers appeared reluctant for the honors and rigors of the assignment.)

Major General, 1941

U. S. Army

One of his lifelong pursuits was the study of the Civil War and its leaders. Not unexpectedly it was the Southern cavalry commanders who especially fascinated him. He modelled himself, it seems, after the dashing General J. E. B. Stuart, the plumed cavalier, who rode twice around the Yankee army and who lost himself on back-country roads when he should have been screening Lee's advance to Gettysburg. Actually it was the man who beat Stuart at Yellow Tavern whom he resembled closer as a soldier, perhaps, than the visually more attractive Jeb Stuart. That man was Philip H. Sheridan, commander of the cavalry corps of the Army of the Potomac under Grant and Meade, who burned out the Valley of the Shenandoah and finally hounded the Army of Northern Virginia to that tragic *cul de sac* of Appomattox Court House. It was Sheridan who molded the Federal cavalry into a compact striking arm that could break the enemy flank and stave him in from the rear, who refused to see the cavalry merely as the "eyes," the scouting force, of the infantry. Sheridan—a short-legged bantam, the exact opposite of the magnificent Patton—like his legitimate military descendant was a combat leader who simply had to be in the forefront of battle no matter how many stars he wore on his shoulders. Patton, like Sheridan, insisted that the cavalry (or armor) must be a weapon to achieve the breakthrough, and like Sheridan he had to do battle to prevent its being committed piecemeal. The author points out that it wasn't until the lessons of Tunisia were absorbed that armor was not committed by fragments, and draws a parallel with the similar mis-employment of Federal cavalry during the first three years of the Civil War.

As one of Pershing's boys in the

THE REVIEWER

Richard O'Connor has worked on newspapers in New York, Boston, Chicago and Washington. He is employed as a reporter on the *Los Angeles Herald-Express*. He has written three military biographies: *Thomas: Rock of Chickamauga, Hood: Cavalier General,* and *Sheridan the Inevitable*. Late this fall his story of the sinking of the *Titanic* will be published under the title *The Night a World Ended*.

Bobbs-Merrill

years before American entry into the First World War, Captain Patton served with the Punitive Expedition into Mexico as headquarters commandant, but that did not prevent him from taking the field on at least one occasion and breaking up a nest of irregulars. When the American Expeditionary Force sailed for France in 1917, Patton again was Pershing's headquarters commandant, but was soon transferred to the newly formed Tank Corps under Brigadier General Samuel D. Rockenbach. Patton trained two battalions of the First Brigade, which were equipped with 22 Renault tanks—the sum and substance of the American armored forces in their infancy. It was not long before a German officer was writing home that the U.S. tank assault was a terrifying spectacle: "baby tanks spewed from the broth of hell."

At St. Mihiel the American armor knifed into the outposts of the Hindenburg Line, with Patton, then a Colonel, riding a tank in the first wave of the assault. In the forest of Argonne Patton led the six companies of the First Brigade, Tank Corps, and smashed the fanatic rearguard action of the 1st Prussian Guard. On foot and accompanied only by his runner, Patton charged a machine gun nest holding up the advance and was wounded. The end of the war saw the art of maneuver restored to warfare.

But the clear indication that war would move on treads and wheels in the future was not visible to Congress, which in 1920 appropriated only $500 to the Tank Corps. Patton went back to the horse cavalry in disgust. Shortly before the outbreak of World War II, he was commanding a tank brigade of the Second Armored Division at Fort Benning. He was the gadfly of the maneuvers in Tennessee and Louisiana, disconcerting his superiors on one occasion by capturing Shreveport, which had not been contemplated.

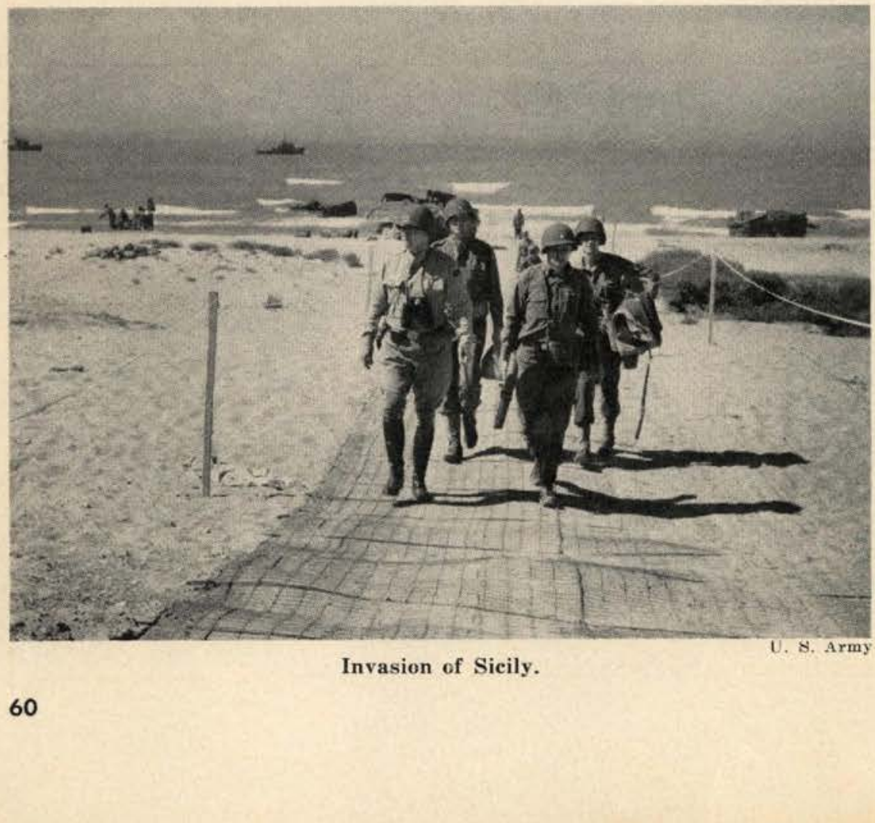
After commanding the Desert Training Center at Indio, California, and shaping up the nucleus of U.S. armored forces, he was assigned to lead the Western Task Force in landing on the Atlantic coast of French Morocco. Once the French resistance ended, Patton was severely criticized, in some quarters, for his dealings with the tricky French proconsuls in Morocco; but Semmes, fighting under Patton again as an over-age lieutenant colonel, ably defends him on that score. General Patton, Semmes says, "wisely decided not to disturb the internal affairs of Morocco" but kept a close watch on the "slippery" Resident Commissioner Nogues. He concluded a word-of-honor armistice with the French generals when the more formal approaches of the diplomats resulted only in stalemate.

In the conquest of Sicily, General Patton, commanding the U. S. Seventh Army, again provided proof that the U. S. armored forces had mastered—in such a remarkably short time—the methods of *blitzkrieg*. To his diary, 22 July 1943, Patton confided his belief that the Sicilian campaign had gone splendidly. "I feel that future students of the Command and General Staff School will study the campaign of Palermo as a classic example of the use of tanks. I held them back far enough so that the enemy could not tell where they were to be used; then when the infantry had found the hole, the tanks went through and in large numbers and fast. Such methods insure victory. . ." But he added that the "praises belong to General Keyes" for leading the decisive thrust. It was during the psychological letdown after the Sicilian victory that the general-slaps-private incident occurred. Patton apologized publicly, but confided to his diary that "skulking is like any communicable disease."

General Patton was warned that the main effort was to be expended by Montgomery, but that did not keep him from pressing forward to the last drop of gasoline. General Bradley believed Patton had only enough gas to reach the Meuse, but the Third Army's tankers went 30 miles farther to the banks of the Moselle. When a division commander complained that he was running out of gas, Patton told him to keep going until his tanks were empty and then get out and walk.

Came the long and painful period of waiting on the defensive while Montgomery's offensive ground to a halt and the German resistance hardened once again. During that period Patton began thinking about the war's end; his typical independence of mind led him to believe, Semmes says, that the U.S. and its allies should "woo the German nation to our side and forever cement them to us as allies" by treating them with humanity. This was Patton's idea at a time when the Morgenthau Plan for converting Germany into a vast cow pasture was being propounded.

In the cold, soggy Autumn the offensive was resumed by the Third Army in the sector of Metz and its great fortresses. He found comfort, curiously enough, in reading Marshal Rommel's *Infantry Tactics*, in which



U. S. Army

Invasion of Sicily.

the enemy leader wrote of how the Germans managed to keep their offensive rolling in September, 1914 despite the heavy rains. Patton found Rommel's recollections "most helpful" in planning his own operations around Metz. As for the Siegfried Line, it was "a monument to stupidity." Patton believed that "anything that man makes, man can overcome."

Semmes devotes the last third or so of this well-proportioned book to Patton's campaigns in France and Germany, illuminating from his original and intimate sources the behind-the-scenes battles as well as those in the field. He shows that, shortly before the invasion of Normandy, Patton did his best to get along with Field Marshal Montgomery on the personal level. The general recounted that during a social evening he, Montgomery and some of the latter's officers indulged in a little "mild gambling" and "I won too much at first but finally succeeded in being a slight loser." Evidently Patton was becoming something of a tactician in human relations.

The epic dash across France in the summer of 1944 is described in vivid detail, which without losing objectivity, makes all the more heartrending the SHAEF decision to put the bulk of its resources into Montgomery's massive (and elephantine) offensive to the north rather than Patton's drive to the south. The author makes the account of this armored thrust through the vitals of the German resistance the most exciting portion of the book, as it deserves to be. He quotes a French general who was one of Patton's instructors in a World War I school as saying, "Had I taught that (the Patton offensive) 25 years ago, I should have been put in the madhouse." And General Patton kept quoting to himself that brief litany of superior generalship: "Do not take counsel of your fears." Well he might. On 4 August 1944 his Third Army was committed in the four cardinal directions, north, east, west and south. That eastward drive, the author says, was the "culmination of a lifetime devoted to being ready for this supreme moment."

When the Germans launched their terrifying counteroffensive in the Ardennes, General Patton's rather lonely viewpoint was that "This will get the bastards out of their holes so we can kill all of them." One of the great satisfactions he received out of the Third Army's role in sealing off the bulge at Bastogne was the fact his old Second Armored Division, attached to the First Army, formed the northern prong of the operation, meeting the vanguard of his own army on the snowy fields of Belgium. Not unexpectedly Patton was vigorously opposed when Montgomery expressed his usual passionate desire for regrouping after the Germans were hurled back. Patton, as always, wanted to attack, believing the enemy was weak enough to be dealt a fatal blow.

U. S. Army

Somewhere in France.

Then came the closing operations of the war in Europe, the capture of Coblentz, the Palatinate Campaign, the Rhine crossing, the final thrusts into the Bavarian Redoubt and to Pilsen in Czecho-Slovakia. In these closing months of the war—and his life—his spirit was still unchastened, his speech was still salty, occasionally unguarded and often irrepressible. One order he received from SHAEF required that he guard against flippancy in his reports, and added that he should not attempt the capture of Trier as the operation would require four divisions. His reply: "Have taken Trier with two divisions. Do you want me to give it back?"

With the uneasy advent of peace, Patton refused to go along with the wishful thinking that the Russians were going to be our buddies forever. He viewed fraternization with the Soviet "Ally" with undisguised distaste and kept it to a minimum. The Russians appeared to him as "recently civilized Mongolian bandits," he wrote privately, and the sainted Zhukov was referred to as "that eminent Tartar."

On a hunting trip with General Hobart Gay his staff car collided head-on with a truck on a German autobahn, and 12 days later, having recognized that death was near at hand, he succumbed to his injuries. It appeared that his philosophy on death had undergone no sea change. "What is so strange or unusual about dying? You just walk back out the same door you came in. When you came in, you had no complaints about where you'd come from." The author of this biography read a most moving eulogy at his funeral.

It must be evident from the foregoing that Harry H. Semmes has performed a most valuable service to his late friend and to his country in writing this stirring, high-spirited biography of General Patton. The generalship of George S. Patton needs little embellishment, but the force of character that motivated him is here most brilliantly illuminated. The late German Marshal von Rundstedt said it more briefly—"Patton, he is your best!"—but Semmes has told the whole story.

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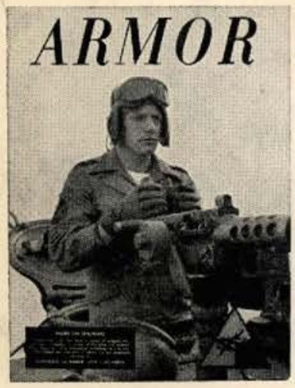

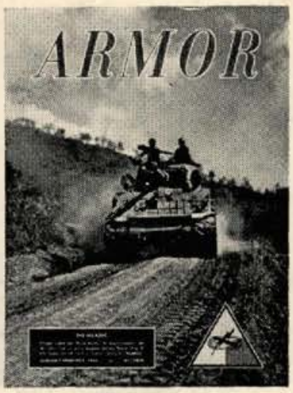

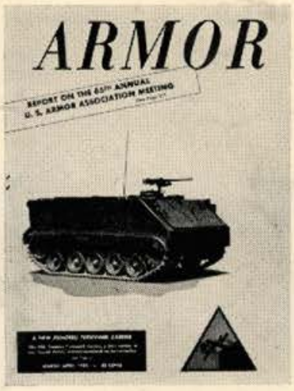
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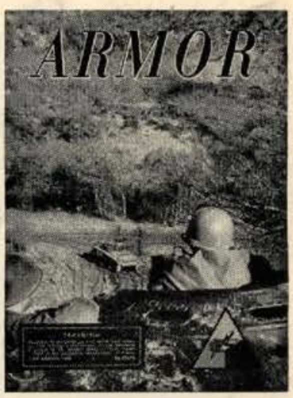

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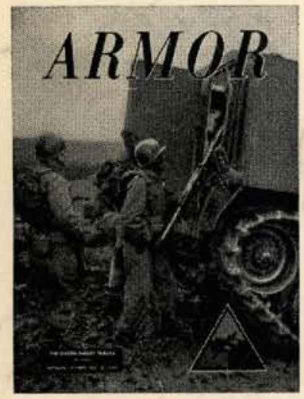

The Magazine of

Mobile Warfare

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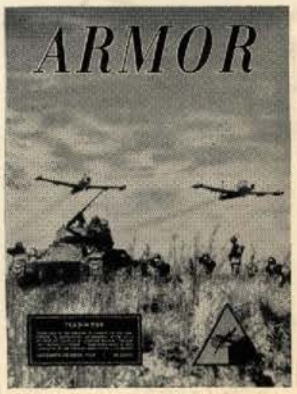

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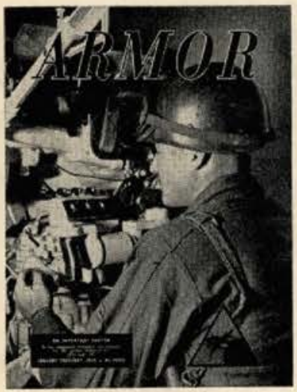

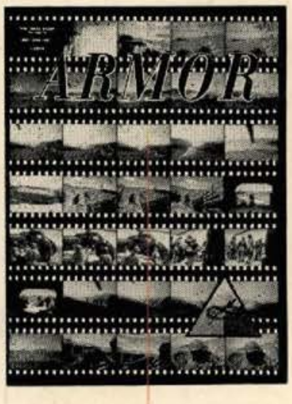

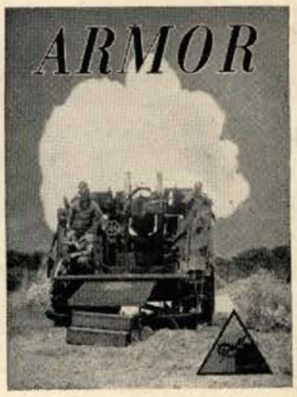

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ARMOR

The Magazine of Mobile Warfare

Continuation of THE CAVALRY JOURNAL

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The Soldier and The Man

by

Guenther Blumentritt

Here, neither a glorification nor a vindication, is the story of one of the dominant military figures of Germany by his Chief of Staff. Posing the question, "Why did the Army succumb to Hitler's influence?" the author shows the underlying psychological struggle between the old and new elements. Aloof from politics, von Rundstedt finds himself under orders from a Supreme Commander such as no General Staff had ever encountered. The inside facts of the battle for Europe are disclosed—the command to "hold back" before Dunkirk; von Rundstedt's criticism of the regime; his removal from command and reinstatement; private thoughts on the orders he receives; the political intrigue following Rommel's appointment to command the Western Beaches, which undermined the entire German defense system on the eve of the invasion!

Price $3.50

LETTERS TO THE EDITOR

Identifying the September-October Cover Shot

Dear Sir:

Many favorable comments have been received on the very fine story of the 49th Armored Division entitled "Training the Lone Star Division" in the September-October issue of ARMOR.

I thought that you might like to have the identity of the officer shown in the excellent cover shot taken by Sergeant Treadway of the Post Photographic Laboratory at Fort Hood. He is Second Lieutenant Joseph F. DeSalvo of Company A, 156th Tank Battalion located in Dallas. Lieutenant DeSalvo is now attending the Company Officers' Course at the Armored School.

COLONEL JAMES D. SCOTT

Chief of Staff
49th Armored Division
Dallas, Texas

Technical Assistance

Dear Sir:

I am now doing research and development work on Tanks and self-propelled Artillery for the Ordnance Corps. I hope that my efforts will improve Armor's "tools of the trade."

I always look forward to receiving each issue of *ARMOR* and have never been disappointed. Since I believe that a knowledge of the use of weapons is necessary for an Ordnance man as well as a knowledge of engineering, *ARMOR* now takes on, for me, an aspect of professional importance.

Incidentally, in your center spread of your September-October issue on pages 32—33, you did not identify the tanks. The French Renaults are on the left and center pictures. French Schneiders are in the upper right and the British Mark IV is in the bottom right.

Also I believe that some of the characteristics of these tanks might prove interesting to readers of *ARMOR*. The French Renault carried a crew of two, weighed 7.4 tons, had a 39 horsepower engine and a maximum speed of 6 mph. Its armament consisted of a 37mm Puteaux gun or an 8mm Hotchkiss machine gun. The French Schneider carried a crew of six, weighed 14.9 tons, had a 70 horsepower Schneider engine and a maximum speed of 5 mph. Its armament consisted of a 75mm pack howitzer in the right sponson and two 8mm Hotchkiss machine guns. Its nose piece helped to cross obstacles and barbed wire. The British Mark IV carried a crew of eight, weighed 30.2 tons, had a 125 horsepower Daimler engine and travelled at the enormous speed of 3.7 mph. Its armament consisted of either two 6-pounder naval guns and four machine guns (Maxim or Vickers) or six Vickers guns only.

SAMUEL BERLINER III

Aberdeen Proving Ground
Aberdeen, Maryland

Back Issues For Sale

Dear Sir:

Having noticed on previous occasions, letters addressed to this column requesting old publications, I wish to offer for sale to interested readers several back issues of *The Cavalry Journal*.

These issues cover the four quarters of 1928 and 1929, and the first and last quarters of 1930. These are the

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Rates: See bottom of contents page.

last of a collection that has given the owner a great deal of pleasure and information.

I can certainly recommend to your readers the habit of retaining old copies of *ARMOR* in handy binders for future reference and collection purposes.

1st Lt. Daniel W. Derbes
Office of the Assistant Commandant
The Armored School
Fort Knox, Kentucky

• *Anybody interested in purchasing these copies can contact the writer or this office. There are other back copies of the Cavalry Journal in limited supply dating back to 1905 available for sale at 50 cents per issue.* Ed.

Are You Being Assigned Down Under?

Dear Sir:

It is this Association's desire to contact any visitors to Australia who are associated with Armor in the United States, either past or present.

Will it be possible to publicize this and inform us when any visits are intended so that we can make suitable arrangements for entertainment and exchange of ideas?

F. W. Mackay
Federal Secretary
Royal Australian
Armoured Corps Association
84 Pitt Street, Sydney NSW, Australia

• *This office has had the pleasure of meeting several officials of the Australian Association when they visited Washington. Exchange of ideas has been most helpful. It is their sincere desire to contact anybody visiting Australia. Contact can be made either direct or through this office.* Ed.

Re Separate Tank Platoons

Dear Sir:

It is of interest to me and my unit if we hold the distinction of being the only separate tank platoon in the Army or do we share this unique honor with other units? If there are other units I would appreciate knowing their designations and locations.

1st Lt. Jack L. Mooneyhan
95th Tank Platoon
2d Battalion Combat Team
APO 81, New York, N. Y.

• *A check was made and it is believed that your unit is the only one to hold this distinction. At least it is the only tank unit, a part of the only Battalion Combat Team, which is on the troop list. There might be other separate tank platoons but they are not on the official troop list.* Ed.

Guest Editorials

Dear Sir:

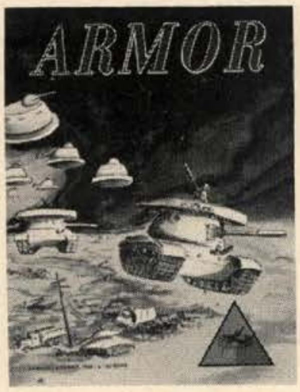
Congratulations to you for the September-October issue's editorial. The departure from the normal editorial custom of combining and paraphrasing the thoughts of a number of intelligent personnel is justified. In my mind whenever one individual has already briefly covered an entire concept in a single statement, such as General Howze did, your readers should receive the author's original, undiluted views.

I hope future issues of *ARMOR* will contain, from time to time, other "editorials" written by our advanced thinkers.

The circulation of *ARMOR* certainly includes junior as well as senior readers who have valuable ideas about the future of mobile warfare; the junior readers will be responsible for putting into practice the theories being adopted now as the Army's plans for tomorrow. Let those men speak up NOW through articles and editorials.

Again congratulations on your wisdom in waiving the right of an editor to retain the editorial for his own interpretations of vital concepts.

Major John K. Brier
6710 Haven Place
Falls Church, Va.



THE COVER

The drawing used for the front and back cover of this issue is the conception of Lieutenant Colonel Robert B. Rigg, the author of our lead article titled "3-Dimensional Warfare." The author and editor agree that it is a bit futuristic, also that it is not an improbability.

STRATEGY

by

B. H. Liddell Hart

Here is the classic book on military strategy. Its lessons are vital to the security of the free world. The author is one of the world's foremost military thinkers; a man generally regarded as "the Clausewitz of the twentieth century" but with the distinction that Clausewitz was a codifying thinker, Liddell Hart a creator of new strategical and tactical ideas and methods.

This book presents the theory and history of "the indirect approach" told in the course of a vivid outline of major wars of the past 200 years including a concise account of World Wars I and II. The book answers the demand for an exposition and illustration of doctrines which have gained increased attention and use by American and other free world military leaders.

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A look into the crystal ball, coupled with know-how gained from past experiences, may serve us well should the emergency of an all-out war confront us in fifteen years

3-DIMENSIONAL WARFARE

By LIEUTENANT COLONEL ROBERT B. RIGG

BY 1970 it is possible to achieve a revolution in ground warfare that will reduce the influence of terrain on combat by approximately 70 per cent. This revolution can:

1. virtually eliminate the military use of roads.
2. make land mines, rivers, bridges and ridges obsolete as barriers.
3. reduce requirements for military engineers.
4. increase the chances of shortened conflicts.
5. eliminate the need for airfields in combat theaters.
6. make ground warfare 3-Dimensional.

Since the age of Knighthood's armor the soldier has been naked on the battlefield. The present plastic vest and tank armor cover this nudity to the extent of a loincloth. Today's atomic weapons demand shielding for the soldier. A vastly superior mobility of ground forces can provide much of this shield.

Barriers To Be Pierced

Eliminate bridges and ridges, and ground warfare becomes truly mobile.

But the "subsonic" barriers of land warfare have never been pierced. Some have hardly been challenged. We still cross rivers essentially the same as we did in the Civil War—via pontoon bridges. The weight of individual equipment and arms carried by the soldier has not been perceptibly lightened since Napoleon's day. The paratrooper is carrying nine more pounds now than he did in World War II. General Mud is still capable of being a momentary master on the battlefield. The war-lord-combine, bad roads, has never been licked. Modern science, which has created thermonuclear weapons and jet aircraft, can also be applied to modernize ground warfare.

Future warfare will demand decisions on the ground which only armies can achieve. It would be nice if warfare could be reduced to pat solutions of victory by one service.

In the arguments for a future warfare solution the partisans and proponents seek to apply the extremes: all aircraft, or all land force; all one weapon or nothing; all this type of mobility and none of that. Yet the solution lies in combinations. The weapons of war are like playing cards in a poker game. Three aces can win sometimes, but it is also handy to have a full house. Furthermore it is essential that you have the possibility of combining a set of cards—and that your opponent *knows* that you can. If he knows that you can draw only aces and he can draw any combination—then, obviously, bluff and daring lie on one side.

Solutions to success in warfare lie in combinations. So far air mobility has only been combined with land mobility by transfer from one vehicle to another. We have reached the scientific age where mobility of ground and air should be combined. The flying tank is a symbol of this combination. Such tanks and their supporting armored personnel carriers are a necessity. They can likewise become realities. Doubters can raise the issues and obstacles. It is easy to enter a council of fear and drown in the atmosphere. But the atomic submarine, the airplane, and the atomic bomb were created by men who believed in a hope—and worked to achieve it.

An idea can be buried in a time capsule for posterity and musty unearthing—or it can be molded into reality by determined minds and hands.

In 1954 the keynote of a significant future military requirement was first raised in Lieutenant General James M. Gavin's article, "Cavalry, and I Don't Mean Horses."[1] This mobility differential concept has been officially accepted by the Army. Action is underway to achieve it. The problem is woven across many fields of endeavor—civil and military, the ideas and inventiveness of users as well as designers, are sought. They are needed if we are to develop superiority in technique to balance the already known superiority of numbers (in men and machines) we stand to oppose.

LIEUTENANT COLONEL ROBERT B. RIGG, a frequent contributor to *ARMOR*, is the author of *Red China's Fighting Hordes*. During World War II he served in both theaters of operations. He is presently assigned to the Office of the Chief of Staff of the Army. The drawings in this article were done by the author.

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[1] Reproduced in ARMOR, May-June 1954.

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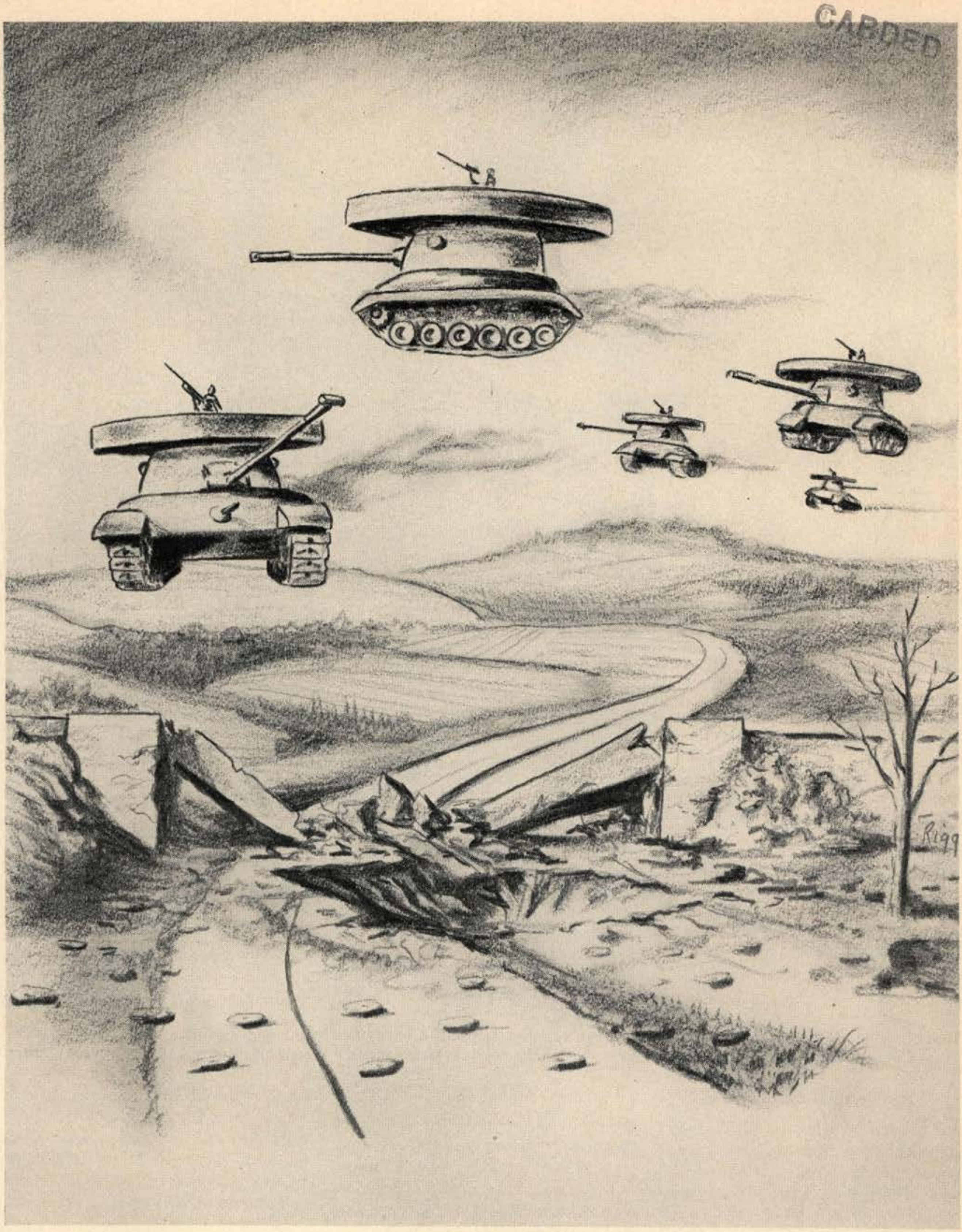
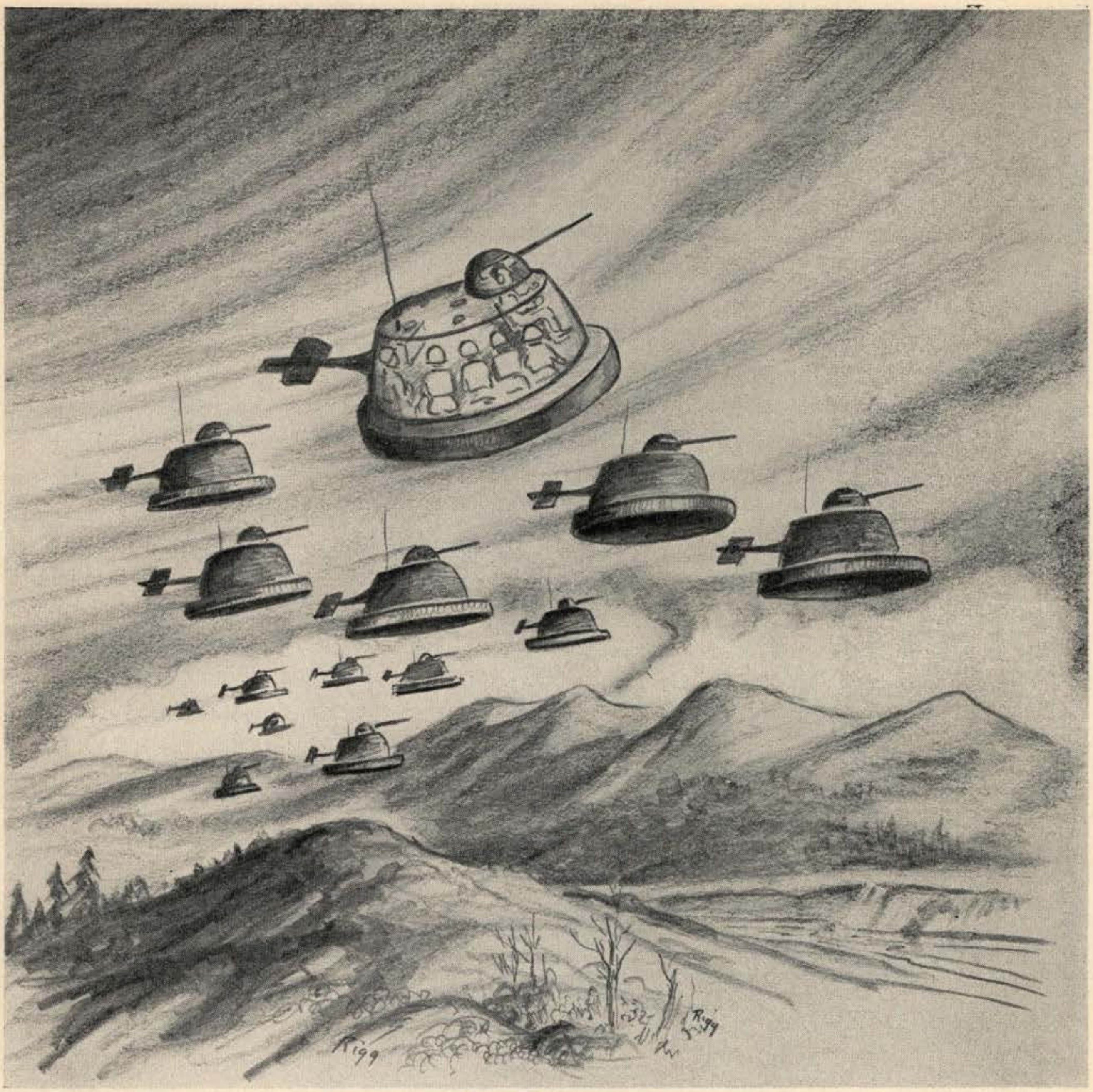


FLYING TANKS

The tank platoon is capable of short flights over rivers, wooded areas and other natural barriers. It can pass over minefields, roadblocks and other man-made obstacles. Thus, armored mobility is advanced to new realms of tactical surprise.



FLYING ARMORED PERSONNEL CARRIERS

Upon landing, APC's are visualized as a pillbox complex forming a base of fire as necessary. They are not capable of ground propulsion but can make greater leaps than tanks. Each vehicle carries a 5-man infantry squad and a pilot gunner.

The Revolution to Come

Three dimensional warfare will come in its true form within a generation. The true form definition provides that certain vehicles have locomotion in air as well as on ground. Terrain and inland waterways will cease to be lines of communication and approach. Military maps will take on a new look. Mud will be relegated to the category of insignificance in military operations. Weather and weather service will gain importance as military factors. Men and not machines, will still dominate, but the machines will better serve and conserve man. To achieve the revolution, military men must think and act more in terms of ideas than in specifications. The present weight of the tank is a mental block to some minds when thinking should leapfrog the present to embrace lighter metals and new construction concepts possible in the future. Men worked for years on the balloon only to find a different concept produced true aviation. Mobility for Army forces has too often been conceived in the extremes of land-miles or air-speed, when actually it lies in a combination of local-land and distant-air ranges.

Development of 3-D warfare requires that military thinking go AWOL from many past concepts—at least for a while.

Bazooka Brigade

The first approach to the problem of defeating superior numbers of hostile tanks is to load every infantryman into his own helicopter, and arm him with a rocket launcher. This is an interim solution, a crash-action field expedient that has main merit if we apply it to reconnaissance units. Replace the cavalry reconnaissance jeep with a small helicopter. But arm its two or three man crew with tank killing weapons for survival at least. A germ of an idea lies here. The Hiller "Flying Platform" and the British pioneered "Flying Bedstead" are concept developments awaiting more practical military application and refinement.

The Flying Tank

A conventional opening joke for many a class on armored warfare! But the joke is getting old; the reality coming closer. The Hiller Flying Platform provides pause. Could its principle be welded into a much lightened tank? Jet power might be harnessed. New metals for lightness and new power for propulsion could be combined for vertical lift and limited "glide." Flying jumps need not be distant—just sufficient to leap mine fields and limited terrain barriers. A five-mile flying leap capability would suffice to put new mobile thrust and tactical surprise into armored warfare. Consider the bridging equipment that could be eliminated. The conventional approach to mine barriers is to develop a mechanical mine remover. The revolutionary approach is to design a tank that can make vertical leaps over them. The flying tank need not have the aerodynamic qualities of a jet fighter. After all, the first atomic bomb had the ballistic characteristics of a brick house, but it got there!

Leaping Personnel Carriers

Protection against conventional as well as nuclear weapons is essential. So these, like the tanks, should have genuine armor protection. However, the tracks on the flying personnel carrier could be left off! This would increase the load carrying capacity. Thus the carrier could become a mobile pillbox. This is not a handicap because the vehicle is essentially a carrier. Locally the infantry must rely on its own legs. That is its role.

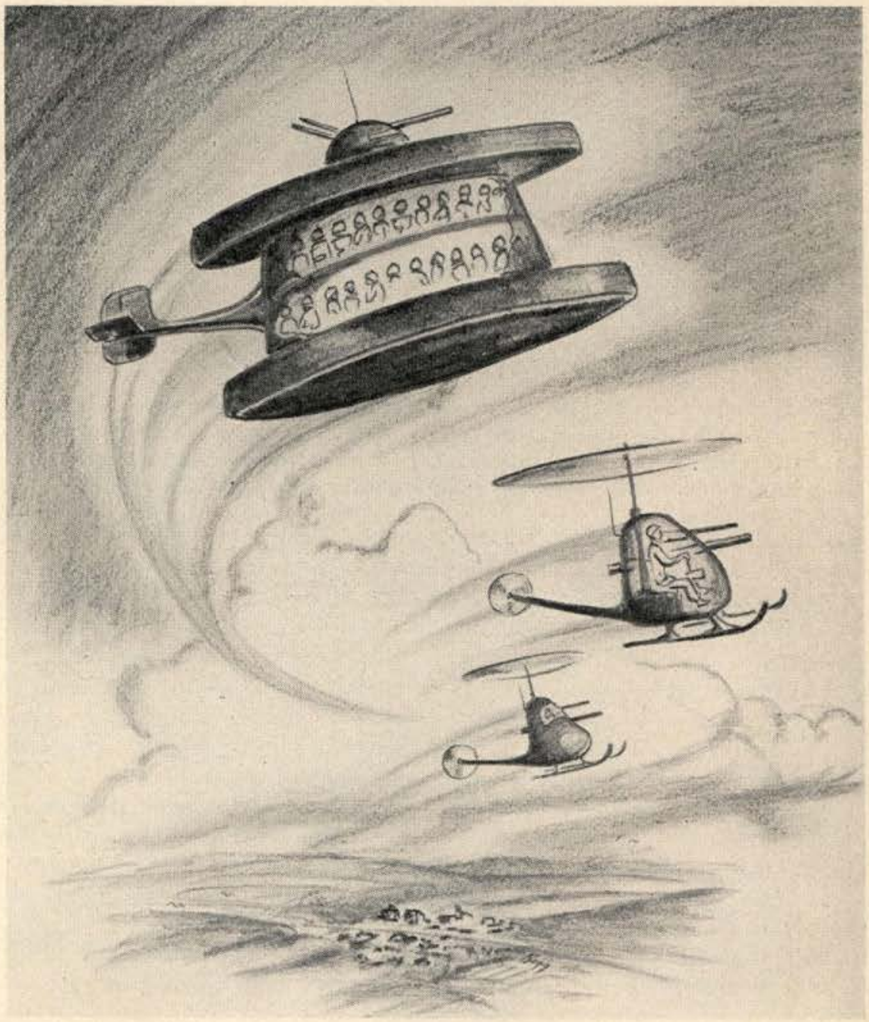
The Proportion of 3-D Combat

The military side first achieving full capability in 3-D combat will be able to successfully oppose seven times its number. The most mobile force will comprise the targets of least opportunity. It can move to concentrate, or to surprise. It can rapidly move to dissipate its numbers by dispersion to where it offers few, if any, profitable targets for opposing atomic weapons. Flights of fleeing targets can return to concentrate in a dawn, to disperse again at sunset. Such mobility will serve to multiply the effect of surprise in a war of no fronts.

If both sides achieve comparable mobility, then a rapid warning and intelligence establishment will be highly essential to survival and success. Initial tactical decisions will not be plotted on maps, but on radar screens. Military decisions will have to be rapid. Warfare will assume pure form, i.e., destruction of opposing forces will be the prime objective. Regional cities and terrain will lose their present importance, and the logistical objectives of fuel, food, and ammunition installations and stocks will take their place. Strategically, of course, national industry will remain the ultimate objective. If atomic stand-off, or non-use by nuclear weapons prevails, the length of the struggle can only be shortened by the more mobile ground force.

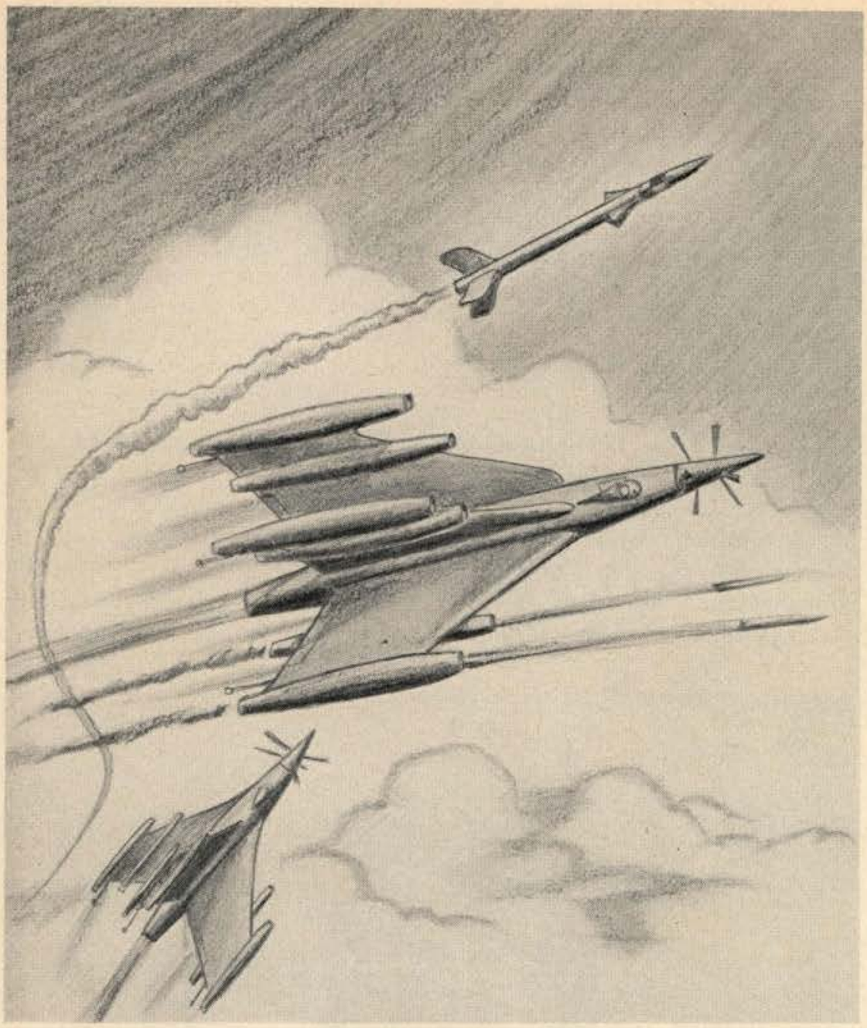
Logistical Implications

Flying pallets of prepackaged supplies will prevail. By virtue of new mobility and speed of transport the present concentration of depots will not exist. Instead, the depots will disperse upon vertical landing over a



LOGISTICAL CARRIERS

The Armored logistical carrier is pictured here with the future reconnaissance flying jeep. The carrier can carry a 48-man infantry unit or equal supply tonnage. The carrier might use the Hiller Flying Platform system of propulsion. The flying jeep will eventually replace the ¼-ton ground vehicle in 3-D Warfare.



FLYING ARTILLERY

Artillery will assume two forms. It will employ guided missiles for long range support and multiple-gun aircraft for close support. The close support attack aircraft is capable of vertical take-off and landing. However, the relation of the two types would not be as close as the author's conception here illustrates.

wide area to later take off and service dispersed tactical units. The only concentrations will be when the tactical units converge for attack and destruction. There the risks must be calculated and necessary in order to fight successfully. The transport of supplies within a theater will be by aircraft capable of vertical take-off and landing. "Flying Beehives" of prepackaged supplies. There will be no single loads of fuel. Instead, prepackaging will insure the essentials of Class I, III, and V. Campaigning will return to its more rugged form because of grim necessity. Men in ages past have fought without PXs and service clubs. Besides, the conflict can be shortened if endurance is heightened. Battles will be shorter, more intense and more decisive. They will also be more destructive. But the long hazards and hardships of up-hill and over-mountain campaigning will be essentially eliminated. Morale will not be stagnated by long stays along ancient roadways. It will be a case of get in and hit, sock hard and rout and get away to return another day. The speed of campaigning will eclipse all past proportions of combat.

If the proper mobility differential is achieved by one side, the strikes that can be made will reduce ammunition consumption by large quantities.

Artillery Advances to New Form

Artillery will take on two forms: long range and close support. The long range artillery will be comprised of guided missiles of more advanced design, range, and accuracy. Launching equipment will have to become much more mobile and compact. Close support artillery will have to assume entirely new form. In essence, artillery support will be air-delivered and not ground-delivered. Tactical air, using new type aircraft mounting multiple cannon and rockets, will replace the self-propelled conventional artillery of this day. These aircraft must be capable of vertical take-off and landing for resupply, to be in consonance with logistical dispersion and elimination of airfields as a military requirement in combat. The present Navy XFY-1 (vertical landing fighter) has characteristics that could become common to future air-artillery. Future artillery for the support of ground forces in 3-D warfare will require:

1. elimination of both tactical aviation and field artillery in their present form.
2. combining the gun and rocket firepower in a new form of tactical aircraft.
3. placing this artillery within Army Aviation.

The Challenge

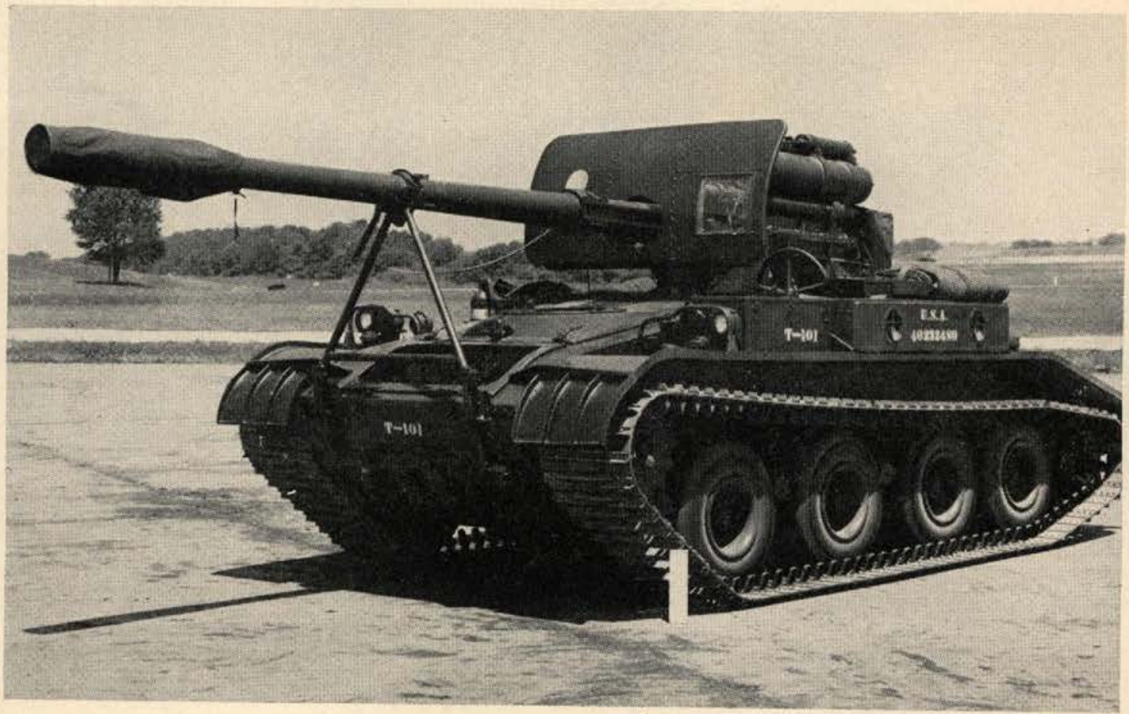
It is easy to write articles, and to list specifications of weapons. The difficult task is to fulfill specification requirements by actually developing the weapons and craft.

Military men establish requirements and specifications. Civilian inventors fulfill them. History shows that many of the more revolutionary machines of war originated in the minds of civilians, and without military specifications available beforehand. The military user of the product has not been the primary creator. As an inventor the military man has had many obstacles in his path and no significant rewards have encouraged military inventiveness. Uniformed men have sufficient tasks at hand, but the future demands that soldier ideas, imagination and inventive talent be better tapped and rewarded. The "Suggestion Box" is heavily predicated on administration and minor economies. Yet the real challenge of the future lies in the development of new weapons, machines and tactics for combat.

We know our combat problems. Therefore let us contribute more to the solution of them in peace, so that the means and machines we will use in war will be better.

CARDED

90MM SELF-PROPELLED AIRBORNE GUN



U. S. Army

NOMENCLATURE. Gun, 90mm, Self-Propelled, T101.

CHARACTERISTICS. Weight 15,800 pounds; silhouette, 80 inches; ground clearance, 15 inches; crew, 3 man; speed, 30 mph; engine, Ordnance-Continental, 6 cylinder, air cooled, 205 maximum hp; transmission, General Motors cross-drive; pneumatic tires, 8, smooth tread, 7.50 x 12.00.

DESCRIPTION. The T101 90mm SP gun has a light, tank-like body with a hull built entirely of lightweight metals. Its light weight enables it to traverse muddy, marshy, or sandy terrain and snow, and permits it to be air-dropped. Its armament, a 90mm gun mounted above the hull without a turret, is a powerful antitank weapon. The vehicle weight is carried by two band, segmented tracks, each 20 inches wide and made of rubber reinforced with steel. Four pneumatic-tired bogies ride these tracks.

USES. The T101 was designed to meet the military requirements for a light, highly mobile, hard hitting self-propelled antitank gun for use in the assault phase of airborne operations.

HISTORY. The need for a self-propelled, airborne tank gun with which to oppose enemy armor and perform other tank assault roles in airborne operations has long been recognized.

Accordingly, the Office, Chief of Ordnance was requested to initiate the design and development of such a self-propelled weapon.

On 12 October 1950, the General Motors Corporation was awarded a contract to design and build two pilot vehicles and to supply certain spare parts, drawings, prints, and notes on matériel.

Pilot No. 1 was test fired in January 1952, and Pilot No. 2 was completed the following June.

During March 1952, engineering tests were conducted at Yuma, Arizona and at Devil's Lake, North Dakota.

User tests were begun by CONARC Board No. 2 in the summer of 1953, including desert operations, altitude tests, and air drop.

CARDED

Associated Press

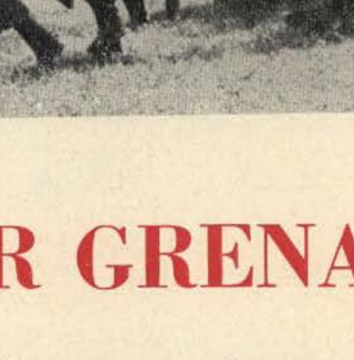
PANZER GRENADIERS

Infantry of the German Armored Formations

By RICHARD M. OGORKIEWICZ

A MENTION of German *Panzer* divisions, which played such an important part in the campaigns of World War II, usually conjures a picture of swiftly rolling masses of tanks. Up to a point the picture is correct, for tanks were the *Panzer* divisions' principal weapon. But it does less than justice to the contribution of other arms to the successes of the *Panzer* divisions and the role which they played in the combined arms' team of the *Panzer* division.

Of the various arms a particularly interesting and important part was played by their infantry component, or *Panzer Grenadiers* as they were later called. The position which this infantry component occupied within the structure of the divisions and relative to tanks, their coordination with tank units and the development of the infantry units themselves contain much of interest not only historically but also in relation to many current military problems.



RICHARD M. OGORKIEWICZ, a frequent contributor to ARMOR, is presently with the Humber Limited, Rootes (Automotive) Group. Until recently he was with the Ford Motor Company, England.

Original Features

There were two notable features about *Panzer* divisions from the moment they were created in 1935. Both had been discussed and argued before but the *Panzer* divisions were their first practical manifestation.

The first feature of note was the relative position of infantry and tanks which represented a new concept in the employment of the two arms. Tanks and infantry had, of course, been used together before but until then tanks performed a strictly supporting role and were entirely subordinate to the infantry. In the *Panzer* divisions the relative position was for the first time virtually reversed. The pace was set by tanks and the role of the infantry was to complement and support the tanks; and much thought and effort were devoted to making the infantry more mobile and capable of keeping up with the tanks under the different combat conditions.

The other feature was that by incorporating a sizeable infantry component the *Panzer* divisions diverged from much of the early thinking on the organization of mechanized formations. The latter tended toward the "all-tank" ideas, that is, armored formations composed almost entirely of tanks. The organizers of the *Panzer* divisions, however, recognized from the start the need for an adequate infantry force to supplement the tank units and for some time afterwards *Panzer* divisions were the chief example of armored formations with an adequate and integrated infantry force. They were also the first example of armored formations which were regarded as versatile fighting teams and not merely mobile formations for exploitation and raiding—as so many other armored formations have been.

The First Panzer Divisions

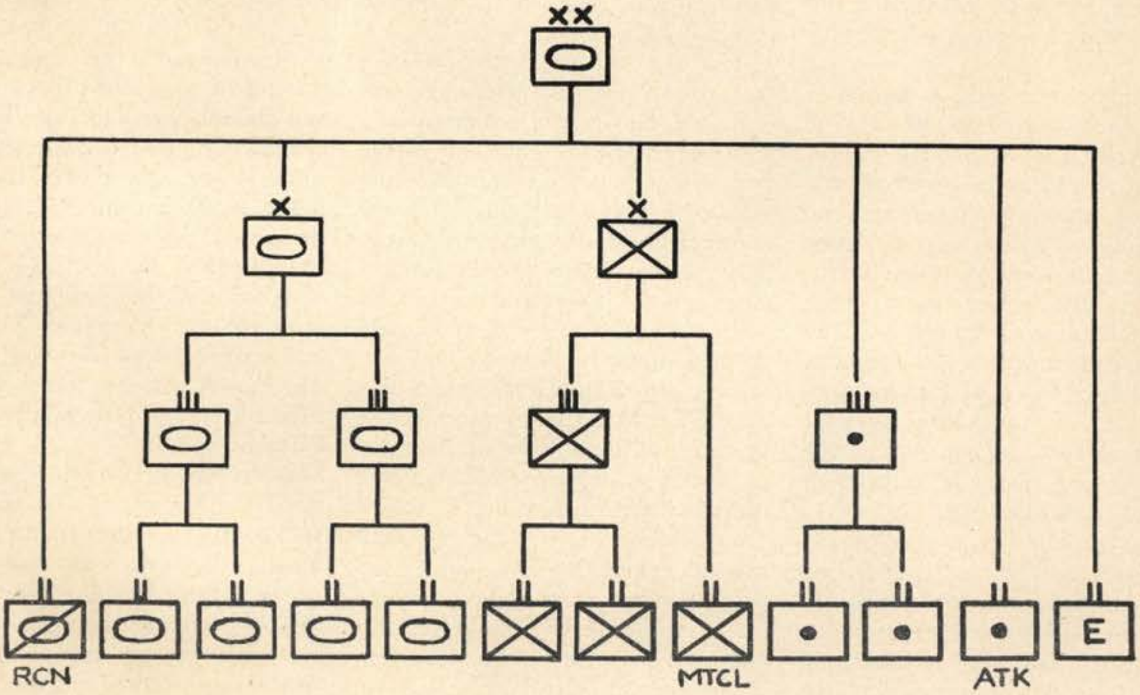
When the first three *Panzer* divisions were activated in October 1935, their main component was a tank brigade with two 2-battalion tank regiments. This was in keeping with the primary role allotted to tanks, and the nominal total strength of the brigade was 16 tank companies, or 561 tanks. This total was sufficient to satisfy the most ardent tank enthusiasts and one which is still higher than that of any other armored formation.

Supporting the tank brigade there was, however, an infantry brigade with a 2-battalion motorized infantry regiment and one motorcycle battalion, each battalion having three rifle and two heavy weapons companies. In addition to the tank and infantry brigades there was also an artillery regiment with 24 105mm howitzers, an antitank battalion with towed 37mm guns, an engineer battalion and a reconnaissance battalion, as well as all the usual divisional service units required for tactical support.

This divisional organization was put to test in peacetime maneuvers and, contrary to the original views, the three infantry battalions per division were found inadequate. It was decided therefore to increase the infantry strength by one battalion to a total of four per division. As a result, the next three *Panzer* divisions, the 4th, 5th and 10th, activated between 1938 and 1939, had a rifle brigade with two 2-battalion regiments while in the first three the motorized regiment was expanded from two to three battalions.

Four other *Panzer* divisions, the 6th to 9th, which were converted from the Cavalry sponsored Light Divisions after the 1939 Polish campaign, started with four rifle battalions apiece and retained them on changing their designation and role. Thus, on the eve of the 1940 French campaign, nine out of the ten *Panzer* divisions then in existence had four and one, the 7th Division, even five infantry battalions.

This fact, incidentally, seems to have escaped Allied Intelligence at the time for all contemporary records (and many post-war ones too) show only the original, 1935 organization,



ORIGINAL PANZER DIVISION (1935)

U. S. Army

German Armored Personnel Carriers shown somewhere on the Eastern Front.

with only three infantry battalions per division.

Wartime Changes

After the 1940 French campaign, which had such an important influence on the development of the *Panzerwaffe* and armored forces throughout the world, further changes took place in the organization of the *Panzer* divisions. The famous order of the German High Command of September 10th, 1940, doubled the number of *Panzer* divisions and, at the same time, increased still further the strength and proportion of infantry within them.

The infantry brigade of each division was reorganized on the lines of that already tried in the 7th *Panzer* Division, that is, with two 2-battalion motorized infantry regiments and one motorcycle battalion. At the same time the tank strength of each division was reduced from four or three tank battalions to three or two. By the time the reorganization was complete, on the eve of the 1941 Russian campaign, six divisions had a regiment with three tank battalions and the other fourteen divisions a regiment with only two battalions.

These successive changes in organization between 1935 and 1941 altered radically the ratio of infantry to tanks from that which existed originally when there were 16 tank companies to 9 rifle companies per division. Apart from the pre-war addition of a fourth infantry battalion, on mobilization in 1939, tank battalions were reorganized on a three company basis, the fourth company being redesignated as a replacement and depot unit. Thus, during the 1940 French campaign the ratio of tank to rifle companies was 12 or 9 to 12, depending on whether the division had a tank brigade with four battalions or only a regiment with three (and excluding the 7th and 9th *Panzer* Divisions which were exceptional). In 1941, however, on the eve of the Russian campaign, there were only 9 or 6 tank companies to 15 rifle companies per division, i.e., a complete reversal of the original ratio.

The last change in the relative strength of the two elements was criticized by *Panzer* commanders, who deplored the reduction in the tank strength per division and considered that the proportion of tanks to infantry was now quite inadequate. However, in view of the shortages of tanks and the inadequate rate of tank production there was little that could be done about it. Forty-six tank battalions, or less than 4,000 tanks, was all the Germans could muster for the invasion of Russia and tank shortages continued to plague German armored units throughout the war.

Interestingly enough the 1940 German reorganization also had an important influence on Allied armored formations. In both Britain and the United States the drastic reduction in the number of tank units between the original, 1935 organization and the 1941 one (the intervening developments being largely unknown) was wrongly interpreted as a major combat lesson. Taken as such it exerted a strong influence on the reorganization of British and American armored divisions in 1942-1943, in which the number of tank units per division was drastically reduced. In fact, of course, the reduction in the tank strength of the German divisions was purely the result of inadequate tank production.

Russian Campaigns

Further changes in the organization of the *Panzer* divisions resulted from the heavy losses of the 1941 and 1942 Russian campaigns. Once again they affected both the strength and the proportion of infantry to tanks.

First the motorcycle battalions disappeared from the strength of the divisions, partly by amalgamation with the reconnaissance battalions, and the total of infantry battalions per division reverted to the earlier number of four. Then, in 1942, the number of companies per tank battalion was increased from three to the original, pre-war number of four. This, with the normal 2-battalion tank regiment, gave a ratio of 8 tank companies to 12 rifle companies.

The 2-battalion tank regiment was fairly representative of German armored divisions in the latter part of World War II, though the actual strength in the field often differed considerably from it. In 1942 and in 1943 some of the divisions still had three tank battalions per regiment and division. Early in 1944 the "elite" *Grossdeutschland* division even had four, which was the official target figure established in 1943. However, these were the exception rather than the rule and in mid-1944 the two battalion tank regiment per division was officially recognized as the best that could be hoped for, and in practice *Panzer* divisions on the Eastern Front often had only one weak tank battalion apiece.

By comparison with these variations in the strength of tank units the position of the infantry in the *Panzer* divisions was much more stable. Except for the appearance and disappearance of the fifth, or motorcycle, battalion the only major change in the organization was the abolition of the infantry brigade headquarters, in 1942, which were found to be superfluous. From then on the two infantry regiments came directly under divisional control—like the tank regiment—and the infantry strength of the Army *Panzer* divisions remained at four battalions until the end of the war.

Panzer Grenadier Divisions

In the latter part of the war exceptions to the above rule appeared, namely, divisions which had six infantry battalions, i.e., two regiments with three, instead of two, battalions each. The *Grossdeutschland* was one and the *Waffen-SS Panzer* divisions were the others. At their peak, in 1944, there were eight of these *SS Panzer* formations against 25 Army ones.

The reason for this difference was that all these *Panzer* divisions were formed from *Panzer Grenadier* divisions which, in line with the infantry formations from which they originated, had three battalion regiments.

Panzer Grenadier divisions started their life as motorized infantry divisions and just as the light divisions represented the contribution of the cavalry to the development of armored forces they represented the contribution of the infantry. The original, pre-World War II motorized infantry division was a conventional, three infantry regiment formation which had simply exchanged its horse traction (which remained with normal German infantry divisions to the end of World War II) for motor transport. After the 1939 Polish campaign the original organization was adjudged too heavy for the divisions' mobile, follow-up role and one of the infantry regiments was replaced by a motorcycle battalion.

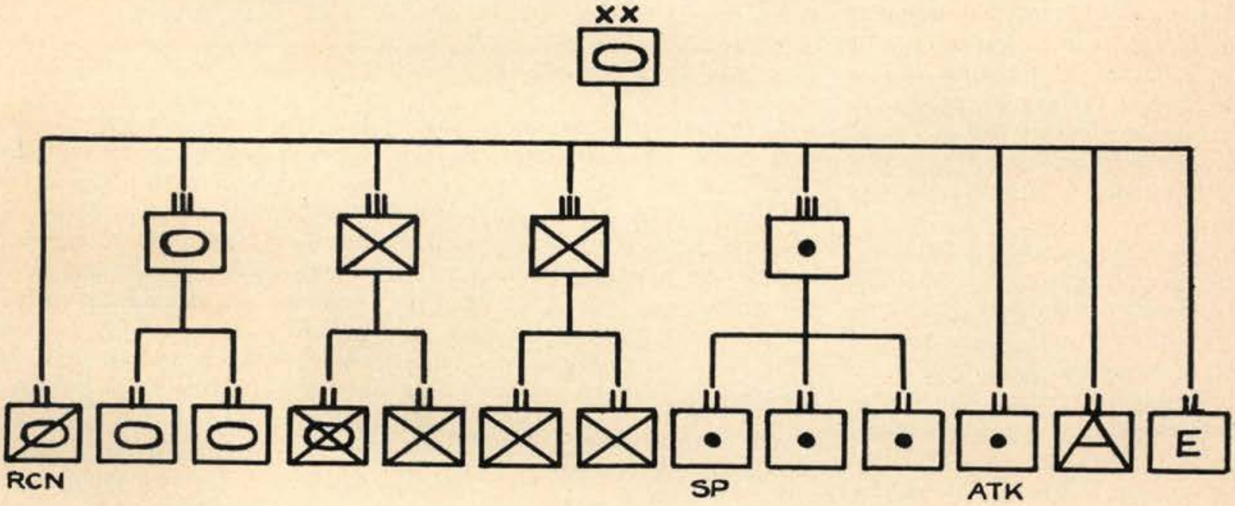
In this form the divisions took part in the French and early Russian campaigns. By 1942, like the *Panzer* divisions, they lost their motorcycle battalions but in that year some divisions received for the first time an organic tank or assault gun battalion. This was later extended to all divisions which in 1943 were re-named *Panzer Grenadier* divisions—the *Panzer Grenadier* designation having been already applied to the infantry elements of the *Panzer* divisions. On the conversion of some divisions into *Panzer* divisions a second tank battalion and other armored equipment were added.

The existence of these *Panzer* divisions converted from *Panzer Grenadier* divisions with six infantry battalions and the fact that on the Eastern Front, in Russia, Army *Panzer* divisions often had only one tank battalion (and were thus no better off in this respect than *Panzer Grenadier* divisions) resulted in demands for three battalion infantry regiments in all *Panzer* divisions. Much of this demand was, however, due directly to the shortage of tanks. Generally four *Panzer Grenadier* battalions per division were considered adequate and *Panzer* commanders who looked beyond the more immediate needs and problems emphasized the importance of increasing the tank strength and the proportion of tanks to infantry. Throughout the war their aim was to expand the tank regiment in each division to four battalions and thus restore the ratio of tank and infantry units to approximately 1 to 1.

Organization and Equipment

Apart from the changes in overall organization and strength, the composition and equipment of the *Panzer Grenadiers* underwent several interesting changes.

In the first three *Panzer* divisions the three infantry battalions—two in the motorized (truck-borne) regiment and one motorcycle—were organized



PANZER DIVISION IN 1943-44

on roughly the same lines as normal German infantry battalions. Each had three rifle companies and one machine gun company: the former had three platoons, or nine rifle squads—and the same number of belt-fed MG 34 light machine guns. The machine gun company had the same machine gun on heavy mountings and 81mm mortars. Unlike normal infantry battalions, however, those in the *Panzer* divisions had a fifth, or heavy, company with a platoon each of 37mm antitank guns, 75mm infantry howitzers and combat engineers.

Both 37 and 75mm guns were organic weapons of the German infantry, which led in the recognition of the importance of heavy, crew-operated weapons. It was among the first to acknowledge that rifles and light machine guns were no longer sufficient for the needs of modern infantry combat; consequently it began to equip its units with a generous allocation of mortars, antitank guns and infantry howitzers long before other armies did. In the normal infantry units, however, antitank guns and howitzers were held in companies at regimental level and the decentralization was therefore carried even farther in the *Panzer* divisions than infantry ones.

But this was only the beginning of the process of increasing and decentralizing heavy weapons, a process which continued throughout the whole war period.

To begin with, several different combinations of units and equipment were tried and at the time of the 1940 French campaign practically every *Panzer* division had a slightly different establishment. It was only in 1941 that a degree of uniformity was achieved.

By then the number of light machine guns per company was doubled to 18, or two per squad. This number was first introduced in the cavalry light divisions on account of their screening, defensive role but it was later extended to all *Panzer* divisions. In addition each company had two more of these belt-fed machine guns on heavy mountings. Eight more were in the machine gun company which also had six 81mm mortars. The fifth, or heavy, company had an antitank platoon of three 37mm (later 50mm) guns and a platoon of two 75mm howitzers. On top of this each 2-battalion regiment had a gun company of two 150 and four 75mm infantry howitzers.

A year later, in 1942, the process moved a step farther. The machine gun companies were eliminated and all the machine guns on heavy mountings as well as 81mm mortars were distributed among the rifle companies, there being four of the former and two of the latter per company. At the same time battalion heavy companies received two more 75mm howitzers and the regimental gun companies were rearmed entirely with 150mm howitzers, six per company on self-propelled carriages.

Still further additions took place in 1943: a regimental antiaircraft company with 20mm self-propelled cannon and a regimental assault engineer company were added. By 1944 battalion heavy companies were issued 75mm antitank guns and four 120mm heavy mortars each.

Decentralization of Heavy Weapons

The organic firepower of the *Panzer Grenadier* units was thus very formidable. This applied not only to the regiments as a whole but even companies which had at their disposal a formidable armory of weapons and were quite capable of independent action on a limited scale.

The growth in the number of heavy weapons was a clear indication of their increasing importance. They could no longer be regarded as a mere supplement and support for the riflemen but as the means by which any action was actually decided. The decentralization of these heavy, crew-operated weapons was further in keeping with the German doctrine—and battlefield necessity—of providing the highest degree of self-sufficiency to even small units. This proved particularly important in mobile operations but later also in all forms of action over extended fronts, such as those in Russia, and in face of enemy air superiority. As regards the latter the Germans experienced it both on the Eastern and Western fronts and they found that a battalion was the largest unit which could be used effectively in face of superior hostile air on the Eastern Front and a company on the Western Front, where Allied air superiority was more pronounced.

In the later stages of the war there were attempts to reverse the general trend, that is, to relieve the companies and battalions of most of their heavy weapons and to centralize them by forming a heavy weapons battalion

U. S. Army

A regimental antiaircraft company, 20mm self-propelled, was added in 1943.

in each regiment. However, these attempts were dictated mainly by shortages of trained personnel and were regarded as no more than temporary emergency measures. Although theoretically sound, this centralization of heavy weapons was found to create difficulties in the path of close and rapid cooperation between them and the riflemen, especially in the kind of mobile operations which the *Panzer Grenadier* units had to carry out.

Integration With Tanks

However, unlike the units of infantry divisions without tanks, *Panzer Grenadier* units of the *Panzer* divisions could have been relieved of some, if not most, of their heavy weapons had there been possible a closer integration with tank units.

Black Star

German Infantry led in the recognition of heavy, crew-operated weapons.

There were, however, two major obstacles to this. One was the shortage of tanks. At best there were only 8 tank companies to 12 rifle companies and in the field the ratio of tanks to riflemen was even lower than this figure would indicate and clearly inadequate. The second obstacle was the lack of suitable means of transport for the rifle units which would have enabled them to keep up with tanks under all circumstances. Although armored half-track personnel carriers were already used in some numbers in the 1940 French campaign it was only in 1942 that each division had one *Panzer Grenadier* battalion fully equipped with them. This, with a few exceptions, remained the maximum allocation. In other words, only one out of the four battalions in each division was equipped with armored, cross-country vehicles and could work in close cooperation with tanks over all types of terrain.

Had there been sufficient tanks there is little doubt that many of the heavy weapons could have been dispensed with to advantage. In fact, some of the *Panzer* commanders were of the opinion that had sufficient numbers of tanks and self-propelled guns been available rifle companies should have been armed exclusively with the 7.92mm M.P.44 "assault rifle"—even to the exclusion of light machine guns. The task of providing heavy firepower would then fall entirely on tanks and other self-propelled heavy weapons, where it properly belonged.

The proposal to arm *Panzer Grenadiers* almost exclusively with the M.P.44 bore some resemblance to the Soviet practice of having infantry detachments armed with nothing but sub-machine guns for tank cooperation—though, of course, the M.P.44 was a far superior weapon having characteristics roughly halfway between those of a sub-machine gun and an automatic rifle. For this to have been really effective, however, not only were sufficient numbers of tanks and other vehicles necessary but also a much greater and more permanent degree of integration between tanks and the riflemen. It would have been greater and more permanent even than that of the mixed battle-groups, or *Kampfgruppe*, which the Germans so successfully evolved and widely used.

Outstanding Problem

As it was, *Panzer Grenadier* units retained their high allocation of heavy weapons and even continued to increase them. This was particularly true of the battalions carried in armored carriers in which, in the end, even rifle companies had organic 75mm assault guns and 20mm antiaircraft cannon, as well as all the other weapons.

With these means *Panzer Grenadiers* had to try and accomplish on their own what should have been done in cooperation with tanks. Within limits they were successful and on occasions were able to demonstrate what well armed infantry could do. But there is little doubt that they would have been far more effective still in cooperation with strong tank units.

It is interesting to speculate what form the organization of the *Panzer* divisions and the coordination between their tanks and infantry would have taken had the matériel been more plentiful. The development of the *Panzer* divisions showed clearly the necessity of integrating heavy weapons and riflemen at the level of the smallest units, and this conclusion would apply to all types of heavy weapons, whether self-propelled or not. And since tanks are, after all, but another means of carrying the firepower of heavy weapons the conclusion would also apply to them.

In their mixed battle groups and in their attempts to increase the mobility of infantry units the *Panzer* divisions had gone a long way toward evolving close and effective coordination between infantry and tanks. But an entirely satisfactory solution to the problem of integrating the two, applicable to all levels, has still to be found.

Sum & Substance

A regular feature in ARMOR, where you may express your views in approximately 500 choice words—the effective medium between the letter and the article. This section is open to all on any subject within the bounds of propriety. Name and address must accompany all submissions. Name will be withheld upon request. No pseudonyms.

OPERATION GYROSCOPE!!! The first Armored units to participate in Gyroscope were the 2d and 3d Armored Cavalry Regiments with the 3d, stationed at Fort Meade, exchanging stations with the 2d in Germany. Other Armored units are already scheduled to participate in this operation in the near future. Through the success obtained by the participating units to date it can be safely surmised that Gyroscope is here to stay. To obtain this interesting story ARMOR called on the 3d Regiment to fill in the details, problems encountered and how they were solved. It is believed that personnel assigned to future participating units can benefit by gleaning the next nine pages. THE EDITOR.

Col. Hamberg

The writer of the following article graduated from the University of Arkansas. He served in Europe during World War II as commander of the 10th Tank Battalion, 5th Armored Division. He was battalion commander of this outfit throughout all its fighting from 1943 to 1945. He received the Distinguished Service Cross and Silver Star with cluster for gallantry in action during this period. Integrated in the Regular Army in 1946, he is a graduate of C&GS and the Army War College. Subsequently he served as a member of the Weapons System Evaluation Group in the Office of the Secretary of Defense. He took command of the 3d Armored Cavalry Regiment in March 1955 and led it on its Gyroscope move to Germany during this past August.

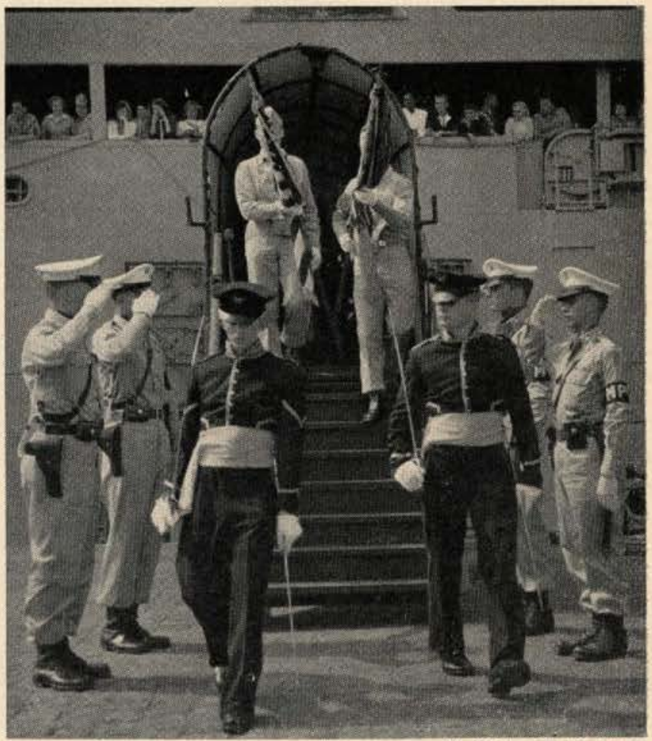
Commander's Comments

In preparing this staff report on *Operation Gyroscope* for Armor, I assigned specific topics to each author to insure complete coverage and avoid duplication. Each of the individuals whose reports follow can be considered experts in their fields in that they have planned, executed and survived one phase of *Operation Gyroscope*. Their articles speak for themselves.

We like *Operation Gyroscope*. While many new problems were faced, we were able to avoid some of the old problems. Moreover, some of the problems we encountered were brought about by the very newness of the operation and can be avoided in the future.

The knottiest problem of all facing a *Gyroscope* Commander, is the decision as to whom to put on his advance parties and when to send out the advance parties. This should be based on the specific circumstances surrounding the unit such as destination, mission, and property problems. A most important consideration is, of course, the personality of staff members available. This decision requires a very neat balance between the Zone of Interior requirements and the overseas requirements. Do not underestimate either of these jobs. To do them separately will overload your normal staff and to do them simultaneously puts you in the position of accomplishing the impossible. At least that is the way you feel about it while it is going on, and even in retrospect it is still a formidable job.

You must place responsible people in your advance parties and give them freedom of action within broad policies which have been thoroughly discussed. Even then


All Photos U. S. Army

The 3d Armored Cavalry Regimental colors debarking on German soil for the third time in the history of the Regiment. When the 2d Armored Cavalry Regiment returned in the Gyroscope switch to Fort Meade, Maryland, it marked the completion of more than 11 years continuous service on foreign soil for that illustrious unit.

they will meet many problems which they must solve without guidance from their commanders. They can do this effectively only if they have confidence that you will back them up.

It is nearly impossible to solve problems by correspondence between yourself and the advance party when you have a ten-day turn-around for an air mail letter and its reply. The free and full discussions you normally have with your staff are nonexistent when you are separated from them by thousands of miles.

It is only human in any property exchanges, such as take place between two units in *Operation Gyroscope*, for each unit to feel that one got cheated or that one got the best deal. Sometimes they both feel robbed! You must do your best to hold down recriminations. The "sister" relationship between *Gyroscope* units is the very essence of long term success of the plan, since by its very nature the people are stabilized and along with them their memories of good deals and raw deals, favors and disfavors, and compliments and slurs. Mutual understanding and agreement between opposite commanders must be established and maintained to prevent these spats from becoming vendettas. Just practice the Golden Rule and keep in mind that another rotation is due in three years.

Another one of the advantages in *Gyroscope* is the stability for senior commanders: a sixteen to eighteen month tour in the Theater in a command position! This will give you only one permanent change of station during your overseas tour. Of course, the junior officers are well taken care of in that they can remain with the same unit for the entire period.

You can expect some new problems with the *Gyroscope* unit. For example, aboard ship on the first day out the troop compartments did not pass inspection, and in looking for the leaders responsible, I was surprised to find almost no noncommissioned officers on duty in the troop compartments. I then realized that many of the key NCO's were quartered in cabin class with their families. I also noticed that the wives were quite happy and seemed to have plenty of time for shipboard entertainment. Then I found the answer; the men were all baby sitting! This posed a very delicate command problem, which we finally solved by compromise. The wives agreed to take over the baby sitting for a few hours while the husbands discharged their military duties.

Getting your units settled during the operation and at the same time getting the families located and set up is difficult. Of necessity, the unit has a very high administrative load during the first few days after arrival. The lack of personal automobiles for transportation and the requirement for food and the other necessities of life complicate your re-location in the overseas theater. We refer to this period as the frantic time of *Operation Gyroscope*. We survived this period only through the charity and hospitality of our neighbors.

Briefly, the operation was a success. We worked hard and have gained valuable experience for the future. We enjoyed ourselves and are firmly convinced that *Operation Gyroscope* is a wonderful adjunct to Army life.

COLONEL WILLIAM A. HAMBERG

The writer of the following article received his commission in 1942. He served in Europe during World War II as assistant S3 and combat liaison officer with the Ninth Armored Group and later CCR of the 7th Armored Division. He re-entered civilian life following the War but returned to active duty in August 1950. He was assigned to Army Field Forces Board #2, then attended C&GS. After graduation he was assigned as Deputy Director, Combat Developments Group, at The Armored School. Following a short tour at Knox he was assigned as Executive Officer of the 3d Armored Cavalry Regiment in February 1955 and commanded the advance party on its move to Germany.

Lt. Col. Fellows

Staff Functions and the Advance Party

Listen well, all you executive officers of future gyroscope units! What I have to say can make you or break you and your advance party in your forthcoming move.

Operation Gyroscope places a huge load on the Regimental staff. In the first place you have to split down the middle about two months before R day. This is at the time when the work load in the ZI begins to mount geometrically. You have POM checks and rechecks; dependents' affairs with naturalization, shots, cars, housing switches and authorizations, passports, etc.; movement orders; TAT equipment; shipping spaces; training; *ad nauseam, ad infinitum.* This with only half a staff left behind.

You'll probably heave an unwarranted sigh of relief when you, your wife and kids, and your half of the Regimental staff take off in that Super-Connie from Idlewild. *Don't be fooled!* It is no vacation you and your advance party are heading for. The overseas theater has many problems for you to solve. You will find that everyone is ready and more than willing to help. The tactical units and service units at all levels will do their utmost to make your move as easy and as smooth as possible. But the basic responsibility is yours and the job is not a simple one. You will have tactical rides; property turnover for a whole regiment (and you will not get custody until the exact moment of turnover); troop and dependent housing to prepare; messing operations; and you will have to become completely familiar with Corps, Army, and Theater requirements. These requirements have to be disseminated to your arriving units in a usable form. Your unit will have to become operational on arrival and that alone takes a tremendous amount of planning.

The job you have is a tough one. When you make up the composition of your advance party, fight, if necessary, for well qualified officers and NCOs in every staff section. Bring a complete, administratively self-sufficient unit. The outfit you are relieving has its problems, too, and what you cannot do for yourselves they have to do for you or it does not get done.

One last word. *Gyroscope* is wonderful. It does provide continuity of family life and it is an efficient way of maintaining theater troop levels. You will solve your problems all right. The "Old Man" will forget how you robbed his staff blind when he sees the Regimental colors planted in the home *kaserne* and watches his troops go efficiently about their business in the new area.

Make detailed plans, bring a complete and capable staff, and do not forget the *clerks.*

LIEUTENANT COLONEL JOHN L. FELLOWS, JR.

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Maj. DeGraff

The writer of the following article graduated from the United States Military Academy in 1944. He served in Europe during World War II as a platoon leader and later company commander in the 14th Infantry Regiment, 71st Infantry Division during 1944-45. After the War he served a tour in Italy. Returning Stateside he attended The Infantry School and joined the 2d Armored Division, accompanying that unit to Germany where he served as company commander, assistant division G2 and assistant to the Chief of Staff. He was transferred to Seventh Army as an operations staff officer. He returned to the United States in August 1954 and became Adjutant of the 3d Armored Cavalry Regiment.

Personnel Actions and Requirements

Personnel actions relating to *Gyroscope* are best reviewed in retrospect when broken down into the following phases:

1. Advance planning.
2. Reception of personnel.
3. Processing for movement.
4. Advance party activities.

Of the four phases listed above, the advance planning phase is perhaps the most difficult and is beset with the greatest number of intangibles. It is during the planning stage that policy decisions affecting all other phases of the operation must be clearly set forth and followed if the operation is to progress in harmony with the time schedule and the personnel situation of the unit.

To this end, the planning officer should be carefully selected and be given information, means and adequate time to develop a sound plan that will suggest solution to as many problems as can be anticipated. This becomes all the more important when it is recognized that numerous additional and unforeseen problems develop as a result of conflicts between personnel interests, and the mandatory requirements of training, operations, and logistics.

The amount of friction which can be eliminated by advance planning is dependent to a large extent on the quality and skill of personnel received into the unit. Where trained clerical and administrative personnel are abundant, the preparations for overseas movement can be carried on concurrently with other personnel activities without significant loss of effectiveness in either area. It is, therefore, especially desirable that high type administrative personnel be firmly entrenched in their TO&E jobs before the main body of fillers arrives.

The processing for movement phase is not without its difficulties even in the most sanguine of situations. Personnel actions of every type tend to culminate in an avalanche of paperwork during the last weeks of preparation; and it is during this period of intense stress that planning, selection and training of administrative personnel—or the lack thereof—is most keenly felt.

The above comment applies with equal effect to the planning and selection of the advance parties. The degree of effectiveness of these elements is directly proportionate to the amount of judicious forethought given to the selection of able supervisors and competent administrative personnel. In no other phase of the *Gyroscope* effort is it more important that a similar size group be administratively self-reliant and independent of assistance from outside sources.

MAJOR ANDREW J. DEGRAFF

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Lt. Col. Sill

The writer of the following article served as an enlisted man for six years prior to receiving a commission from OCS in 1942. He served in Europe during World War II as S3 of the 709th Tank Battalion. After the War he served in the G2 section, Third Army in Europe and later in the same position at Fort McPherson, Georgia. He was transferred to Korea where he became G2 advisor to the ROK I Corps and was transferred to Tokyo in 1953. Returning Stateside he was assigned to the 3d Armored Cavalry Regiment in 1954. After attending the Associate Advanced Course at The Armored School this past winter he became the Regimental S2.

Intelligence

When a unit receives notification that it will participate in *Operation Gyroscope* the Intelligence officer may experience some difficulty in the fields of security clearances, classified documents, maps and aerial photographs, and special operations in the area of future employment.

In overseas commands a much larger percentage of the personnel must be cleared to handle the increased number of classified documents that are encountered. Replacements for the unit were not received in sufficient time to permit processing of the necessary investigations and subsequent security clearances prior to being shipped overseas with the unit. The problem was further aggravated due to the fact that the Regimental Commander was not authorized to grant security clearances for members of his command while the unit was stationed in the United States. When it is determined that an individual is to occupy a sensitive position that will require a security clearance, it is recommended that an appropriate investigation be initiated at the earliest practicable date.

A complete screening of the outgoing unit's classified files should be accomplished in order to establish which documents are to be turned over to the incoming unit. Documents of historical value, retireable records, and printed material from Department of the Army and

CONARC should be retained by the unit having present custody of the documents. All items that may be of value to the incoming unit such as local plans, station lists, adjacent unit SOI's and similar documents should be turned over to the classified documents custodian of the incoming unit. Obsolete documents should be destroyed prior to the joint inventory conducted by the new and old custodians.

Normally the incoming unit requires additional maps and map substitutes in order to familiarize itself with the new location. All maps and aerial photographs of the local area should be inventoried and turned over to the incoming unit. Valuable time is saved when sufficient maps and map substitutes are on hand for the incoming unit.

In order to assist the commander to accomplish a special mission such as maintaining patrols along an international boundary, it may become necessary to augment his staff with additional personnel for that type mission. When such augmentation is indicated, it is recommended that appropriate personnel be assigned and trained with the staff section at least 30 to 60 days prior to arrival of the unit at its new location. The augmentation, if it is to be effective, should consist of trained personnel who are fully *operational* prior to arrival of the main body.

LIEUTENANT COLONEL MORTON H. SILL

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The writer of the following article served as an enlisted man for two years prior to receiving his commission from OCS in 1942. He served in the European Theater during World War II with the 38th Armored Infantry Battalion, 7th Armored Division as company commander. He returned to civilian status in 1946. Returning to active duty in 1951, he was assigned to the 4th Medium Tank Battalion, Fort Hood, Texas as company commander, battalion S3 and later as battalion executive officer. He was sent to Korea in 1952 where he served as assistant G2 of I Corps. Returning to the United States in May 1954, he was assigned as Operations and Training Officer of the 3d Armored Cavalry Regiment.

Maj. Jennings

Training Problems

We must base our approach to *Gyroscope* on the fact that each organization will have problems peculiar to itself. The major problems that face each organization are similar in nature and are aggravated or reduced as factors such as training time available, timely assignment of personnel, specialist training, and transition into the theater training program, affect each organization.

The second and third factors are outgrowths of the first, that of training time available.

The training program of a separate regiment is organized in four phases: cadre training, advanced individual training, basic unit training, and technical inspection and exchange of equipment. The Regiment was hampered by not having all key personnel assigned to the organization prior to the beginning of the cadre training program. *Key personnel* is defined to mean all commanders, staff officers, and Regular Army enlisted men who rotate with the unit. Early assignment of these individuals insures the effectiveness of the cadre training program.

The cadre training program is the firm foundation of all further training. Cadre training and the early need for competent specialists emphasize the necessity for early assignment. Under the present cycle, personnel to be trained as specialists are not available to the unit until 14 weeks prior to embarkation; and two of these weeks must be devoted to leave. The 12 weeks remaining are not sufficient to train all specialists. The majority of these men must be trained at Army Service Schools, where the courses are 12 to 13 weeks in length with certain technical courses being longer; as an example, radio mechanics. Early assignment of key personnel is a must.

Two methods are available to the unit in solving the specialist problem, and both were employed by the Regiment. A vigorous recruiting program and canvassing of units was instituted, since under *Gyroscope* men with prior service could enlist directly into the Regiment and men from other units could, by request, transfer to the organization. From this group, selected personnel were sent to specialist schools. This program, while materially aiding the Regiment, did not provide 100 percent of the specialists needed.

The second method employed was the establishment of regimental specialist schools designed to afford the maximum training possible under the *Gyroscope* cycle. These schools incorporated in their curriculum necessary POR requirements. These two methods produced 85 percent of the specialists needed prior to embarkation.

The overall training program, after receipt of fillers, consists of 14 weeks. This time is divided into four phases: advanced individual training, six weeks; basic unit training, four weeks; and the last four weeks being devoted to technical inspections, turn-in of equipment, and pre-embarkation leave, as well as transition into the overseas training program, which cannot be gauged for time.

The condensing of individual training, especially in an armored cavalry regiment, complicates the firing program. Firing must be extended through the unit training phase, which of course injures that cycle of training.

The Regiment conducted 162 ranges during the training period. Ideal weather prevailed, and the program progressed without deviation. Ranges must be emphasized, since all other training is based on their availability.

If units could conduct basic training as well as the advanced individual, many repetitious subjects could be eliminated and all firing could be completed before the basic unit phase. This, too, would aid the specialist training program.

The final phase is the transition into the overseas theater training program. Early liaison trips to the overseas station will materially aid in the easy fusion of the organization into the theater training program. This period presents many difficulties, as the overseas training program is not in all cases a continuation of the training program conducted in the United States. The unit phase can be extended from the Zone of Interior to the overseas station without difficulty.

The difficulty arises by the established periods for individual requirements such as tank firing, etc., which is not always compatible with the unit training. All *Gyroscope* units will arrive in the theater at the unit training level.

In conclusion, there are certain recommendations that can be made as a result of being a *pilot* unit in *Gyroscope*. First—assign key personnel early in the program to insure a firm cadre foundation. Second—establish specialist schools commensurate to the training time available. Third—all units train their personnel from basic through basic unit and telescope the Basic and Advanced Individual phase to permit a more effective unit phase. Last is the transition period; it should be phased as an extension of a single program based on a "*Gyroscope* Army Training Program." The overall program is effective and the "birth pains" of a new concept are compensated for by the establishment of unity.

Major Dan D. Jennings, Jr.

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Maj. Nutting

The writer of the following article served as an enlisted man in the Army Air Corps for six years before becoming a flight officer in 1942. Commissioned in 1944, he served in the European Theater during World War II as an air base defense officer and transportation officer. Reverting to inactive duty in 1945, he served with the 183d Regimental Combat Team, Idaho National Guard until 1951. Returning to active duty he served as instructor and librarian at The Armored School. He was assigned to Formosa in 1952 where he was an instructor in Tank Gunnery. He returned to the United States in 1954 and became S4 of the 3d Armored Cavalry Regiment.

Supply and Logistics

Operation Gyroscope will pose no problems in addition to those usually encountered in moving a unit from a station in the U. S. to an overseas theater, except for exchange of equipment.

Army Regulation 220-20, which governs *Gyroscope* movements is, like any AR, subject to different interpretations depending on the background of the person concerned. It is absolutely essential that all officers and key noncommissioned officers know what items of individual equipment will be left in place by the two units concerned.

There are two definite problems encountered, and neither is unique.

Time, the key to *Gyroscope* movement, is in short issue. Two important things must be accomplished between the end of training and departure: leave for the command and the exchange of property. We solved these problems by fifty per cent leave quotas and very close cooperation with the technical services. With the best of planning and the maximum cooperation we received at Fort George G. Meade, Maryland, it was still an all but impossible situation.

In the overseas theater, time is more valuable. The unit, if it has an operational mission, will be released at the last possible minute. Vehicles and equipment will be received that are not in the most desired state of maintenance.

Gyroscope will be a panacea for many ailments that beset supply, and will prove effective in curbing hoarding of items in short supply and accumulation of the company *junk-pile* which is moved and concealed with each succeeding inspection.

Supply personnel at all echelons will be purged and purified in the process of rotation and responsible individuals will be forced to maintain accurate records of all transactions. Time is not available to reconstitute files and supporting records.

Personnel is the tool that makes *Gyroscope* function. Especially well-trained, effective supply personnel are also in short supply. Men with six months' service are not yet capable of meeting the problems presented by the situation. Lack of well-trained specialists hampers all activities. Another handicap is training in procedures. Rotation to an overseas theater requires transitional time to become familiar with a new SOP. Under the present concept, this time is not available. One solution appears to be an increase in size of the advance party. This, too, would handicap the turnover of property in the United States, and any additions must be carefully considered.

A solution to these major problems lies not in a change of the *Gyroscope* concept, or complete revision of the *Gyroscope* AR, but in reducing the training time and operational commitment and allowing a longer time for processing and turnover of equipment and orientation for theater policies. In the Zone of Interior, turn-in of property to the technical services concerned, and a reissue to the returning organization, will substantially reduce the time and confusion inherent in fast inventories. In the overseas theater, the operational commitment makes this impossible.

Major Lowell O. Nutting

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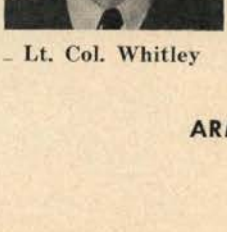
Lt. Col. Whitley

The writer of the following article received his commission in 1942. During World War II he served in Europe with the 10th Tank Battalion, 5th Armored Division as a company commander and battalion S3. He was awarded the Distinguished Service Cross and Silver Star. Subsequent to the War he was a troop commander with the occupation forces and later served as S2 and S3 with the 3d Armored Cavalry Regiment. Returning to the States he attended The Armored School and C&GS. He was next assigned to the GI section, Sixth Army Headquarters at the Presidio. He was *assigned to the 3d Armored Cavalry Regiment in February 1955 and is Battalion Commander of the 1st Battalion.*

Battalion Logistical Problems

In spite of our field training period extending through R-32 our Stateside logistical problems were resolved by superior technical service support and a herculean effort on the part of the men and officers. In the one short month prior to debarkation, the battalion completely rehabilitated all vehicles and equipment, underwent rigid technical inspections, inventoried and transferred all property and completed our own POR processing. I consider this somewhat singular in that it was accomplished with only a token droppage, no reports of survey and fifty per cent of the command on pre-embarkation leave.

Our Advance detachment experienced considerably more difficulty with these obstacles in view of the operational commitment of the unit being relieved. It was necessary for our company representatives to inventory the property piecemeal, sign for it and in turn M/R it back to the original owner in order that he remain operationally ready. This condition continued up to the arrival of our main body, which precluded more than a token final clearance as the rotating unit departed within four hours. This, of course, resulted in property discrepancies and precluded comprehensive technical inspections.

Specifically, I would recommend that the period of rehabilitation and transfer of property be extended and that both units be relieved of all training and operational commitments during this period. In line with this I strongly urge commanders to accomplish the bulk of their pre-embarkation leave schedule prior to this period.

A large portion of transported equipment could better have remained in place, thus saving the cost of TAT and the last minute hassle with packing and crating. I am referring to such items as individual weapons, portable typewriters, field desks and other such impedimenta. Also, some confusion existed within both units as to specific items to accompany the troops, such as mess gear, bayonets, pile caps and publications. In some instances this resulted in a double issue at one station and a *due out* at the other.

Also, some provision should be made to insure that sufficient field clothing in proper sizes is on hand for the unit arriving overseas. This clothing, and other gear not authorized in CONUS, requires that the advance detachment be prepared to submit requisitions complete with individual size requirements.

Ammunition presents one of the most exacting tasks in this area. I recommend that at least one and preferably two NCOs per company be school-trained prior to departure in ammunition care and maintenance, storage, inspection, identification and accountability.

Lastly, I recommend that frequent command, technical and IG inspections be coordinated with *Gyroscope* units to insure the proper standards of maintenance of vehicles and equipment and property accountability.

LIEUTENANT COLONEL ARTHUR N. WHITLEY

The writer of the following article received his commission from OCS in 1942 after two years as an enlisted man. During World War II he served in the Pacific as a company commander and battalion S3 of the 708th Amphibian Tank Battalion. Reverting to civilian status after the War, he served with Reserve components. In 1948 he was assigned to the 67th Tank Battalion, Fort Hood. He was transferred to Korea as a company commander in the 6th Tank Battalion, 24th Infantry Division. Returning to the United States he taught gunnery at The Armored School, Fort Knox, Kentucky prior to his present assignment as Battalion Commander of the 2d Battalion, 3d Armored Cavalry Regiment.

Lt. Col. West

Battalion Administrative Problems

The normal administration of a battalion is always a problem. During the early implementation of *Gyroscope* these administrative problems were doubled or tripled. This, of course, was caused by the very provisions of *Gyroscope* that appeal to all of us; unit rotation, concurrent travel, stability of assignment, etc. Our cadre of officers and enlisted men were gathered from different Army areas throughout the CONUS. Some brought their families with them to Fort Meade; others left them at their old home station, and still others sent them home to "Ma and Pa for a spell." After the initial cadre training, the battalion moved to the field at Camp A. P. Hill, Virginia, for three months training. Here we received our fillers and started an accelerated training program. During this same period, our dependents were receiving their "shots," applying for passports and arranging for the disposition of cars, household goods, etc. While most of this was handled by post facilities at Fort Meade or our own Regimental dependents section, a lot of the administration still fell back on the companies and battalions. We soon learned that our housing allocation in Germany didn't agree with our requirement. We simply had more married officers and NCOs than we had quarters. We attempted to solve this by requesting additional government quarters. They were not available. We then tried to secure additional quarters on the German economy. This was only partially successful, since it seems the German population also has housing problems. We were then forced to establish a housing list based on seniority. This changed constantly and was the source of many administrative problems.

I made a flying trip to Germany in the latter part of April in order to see first-hand the facilities that were soon to be available to me and to look for problem areas for my advance party. This later proved to be quite worthwhile. I was able to give my advance party specific instructions about what I wanted them to concentrate on. Members of my advance party departed in May and June. This consisted of 10 officers and 38 men. They were hand-picked and had a dual responsibility, that of signing for all the property in the battalion and becoming familiar with our new mission in Germany. This was a difficult assignment and we soon found that we probably should have sent more people. Maintaining contact with the advance party while concentrating on our training mission proved to be quite difficult. The only solution to this, of course, is to give the senior member broad directives and wide latitude in his actions. He is on the spot and can best determine the proper action to be taken. This means that you must send the best officer that you have, regardless of how it hurts.

We returned to Fort Meade the last of June and spent all of July in turning our equipment over to the Advance Detachment of the 2d Armored Cavalry, granting of pre-embarkation leaves and POR checks of every officer and man.

We finally rallied the dependents and military personnel at New York and sailed on the 2d of August. I think we all breathed a sigh of relief when the gangplank was raised.

In looking back over these past months, I recommend that future gyroscope units determine their advance party early and send the very best men available. Give them a broad directive and considerable latitude in their actions. The commanders down to battalion level should make a 10-14 day liaison visit to their new station before instructing the advance party. Early determination of quarters available should be made and a current housing roster maintained. A dependents section must be established at regimental level and take the burden of passports, household goods, etc., off the company and battalion. All concerned should lay in a stock of matches so they can burn the midnight oil.

Lieutenant Colonel Oliver I. West

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Lt. Col. Croninger

The writer of the following article graduated from the University of Illinois and received his commission in 1939. During World War II he served in the European Theater in CCA and CCB of the 10th Armored Division. His assignments included S2, S3 and executive officer at the combat command level. Following the War he served in Third Army Headquarters, Germany with the occupation forces. In 1947 he was assigned as Assistant PMS&T at Alabama Polytechnic Institute. His next assignment was to the Field Testing Board, Alaska, as a test officer. Returning Stateside he was assigned to the 3d Armored Cavalry Regiment in June 1954 where he is now the Battalion Commander of the 3d battalion.

Battalion Training Problems

From a battalion viewpoint, several training problems arose in preparing for *Operation Gyroscope.*

Because selective service fillers must have seventeen months service remaining when going overseas, advanced individual training was foreshortened to six weeks to allow three weeks for small unit training. This is inadequate for a unit preparing for operational missions. Small unit training is a *must,* and a workable solution should be found.

Because of the intensity of training, the program was completely inflexible. Inclement weather could preclude completion of crew-served and individual weapons firing, as well as other phases of training.

Specialists, particularly mechanics, clerks, and radio operators, were necessarily recruited from assigned selectees and sent to specialist schools. Consequently, the battalion was critically short of these during training.

The intensified program prevented scheduling adequate driver training or maintenance. Maintenance was accomplished only by extreme effort.

Planning visits of battalion commanders to the overseas station were most fruitful. Such trips should be planned far in advance, and allow commanders to remain at least two weeks with the unit to be replaced. Only then can they become completely familiar with the problems.

Training problems were acute immediately upon arrival in USAREUR. The day after arrival, we were embarked on a rigorous program.

For battalion size units, a rear detachment from the Stateside-bound unit, familiar with techniques and requirements peculiar to USAREUR should remain behind for 30 to 60 days.

On the whole, *Gyroscope* was well conceived and well executed. Morale is high and my men have an enthusiastic approach to their mission.

Lieutenant Colonel Carl P. Croninger

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Capt. Van Hazel

The writer of the following article served as an enlisted man for two years prior to receiving his commission in 1943. During World War II he served in Europe as a platoon leader and company commander with several Tank Destroyer and Tank Battalions. Reverting to civilian status in 1947, he returned in 1951 and served as tank gunnery instructor, The Armored School. In 1953 he was sent to Korea to the 73d Tank Battalion, 7th Infantry Division as a company commander and assistant S3. Returning to the United States he attended The Armored School at Fort Knox prior to his present assignment as Company Commander, Company I, 3d Battalion, 3d Armored Cavalry Regiment.

Company Problems

Most company problems encountered in a *gyroscope* movement are common to any movement of a company. However, there are a few problems that are peculiar to *gyroscope* movements. The first of these is the mutual turn-over of property; the second the exchange of missions and functions from one theater to another.

The turn-over of property is complicated by the fact that liaison is very difficult between two units that are separated by several thousand miles. This may lead to misunderstanding as to which property will be moved with the unit and which will be left behind.

The immediate assumption of our new mission overseas was hindered by the fact that no one knew what reports were to be submitted at company level, and in many cases current circulars and other necessary publications pertaining to these reports were not readily available.

Recommendations to alleviate these problems in the future are: first, coordinate the exchange of property at a high enough level to insure uniformity between companies transacting a mutual turnover; second, require each company participating in the movement to prepare a complete set of portfolios, each containing all the publications pertinent to a particular phase of company operation, such as unit fund, morning report, supply and maintenance; and require in addition a complete list of necessary reports stating the headquarters requiring it and a description of the current publications pertinent to the report.

These several steps will help a company complete a *gyroscope* movement and assume a new mission with a minimum of difficulty.

Captain George J. Van Hazel, Jr.

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The writer of the following article enlisted in the Army in 1943. During World War II he served in the European Theater of Operations with the 7th Armored Division. For this service he holds the Combat Infantryman Badge and the Bronze Star Award. Subsequent to the War he was assigned as First Sergeant, Company A, 14th Armored Cavalry Regiment in Germany from 1946 to 1952. Returning Stateside he was assigned to the 3d Armored Cavalry Regiment at Fort Meade, serving as First Sergeant of the Service Company. In May 1953 he was assigned as Regimental Sergeant Major which position he held during the Gyroscope move.

M/Sgt Levy

The NCO and Gyroscope

Patience is the essence of Reward. The NCO corps had waited patiently for the Department of the Army to alleviate many sad situations which had the corps almost on the ropes but not out. Like an answered prayer, we awoke one morning to find that *Gyroscope* had been born.

We all knew what the word *gyroscope* meant, but how would it affect us as NCOs? First of all, it meant that instead of being reassigned to a new unit every three years, an NCO could now spend his entire period of service with one unit. Secondly, if he was married, his entire family would move with him concurrently to his new duty station. This was a blessing in itself; many good NCOs with long periods of service were forced to give up the service as a career because of broken homes and undue hardships on their families.

Perhaps I am getting away from myself in pointing out all the good points of *Gyroscope*. Many problems were encountered; the ones that I will enumerate affect the NCO. I was fortunate in being in a unit that was designated a *Gyroscope* unit. Now it is true that *Gyroscope* was given wide publicity and it gave every NCO an opportunity to apply for a transfer to a unit participating in this new venture.

However, commanders whose units were not designated as *Gyroscope* units did not want to lose their key NCOs; as a result, poop sheets on *Gyroscope* were either pigeonholed or even destroyed. Applications for transfers were blocked and even held for long periods of time before being forwarded. By this time, *Gyroscope* units were rapidly filling up to TO&E strength; thus many good NCOs lost out on being assigned to a *Gyroscope* unit.

A probable solution to the problem would be to let the Department of the Army make assignments of E-7s and E-6s to *Gyroscope* units. This is the way it would work: Units which were not designated *Gyroscope* units would submit a roster of all their E-7s and E-6s to the Department of the Army. A letter and folder explaining *Gyroscope* in detail would be mailed to these individuals, and if interested, they could submit requests to the Department of the Army for transfer to a *Gyroscope* unit.

In summation, I think that all the bugs will eventually be ironed out. Future *Gyroscope* organizations will profit from mistakes made by the *guinea pig* units, and at one time or another all NCOs should be able to become part of a *Gyroscope* unit.

Yes sir, fellow NCOs, *Gyroscope* is here to stay!

Master Sergeant Fred Levy

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The writer of the following article received his commission in 1944. He received his BA degree from the College of Wooster in 1925. He received his MA degree from Western Reserve University in 1939 and his BD degree from McCormack Seminary, Chicago in 1940. During World War II he served in the Pacific, and in Korea and Japan in the postwar period. Returning to the States in 1948 he served at Fitzsimons General Hospital, Denver. In 1950 he returned to Korea and served as Chaplain in several capacities during hostilities. He was transferred to Valley Forge General Hospital, Phoenixville, Pa. in 1953 and assigned in May 1955 as Regimental Chaplain of 3d Armored Cavalry Regiment.

Maj. Helm

The Chaplains' Aspect

There were three phases in the chaplains' aspect of *Operation Gyroscope:*

1. *Pre-Operation Gyroscope Planning*. This was an important phase.

Information was received from the Regimental Chaplain of the 2d Armored Cavalry Regiment with regard to the location of battalions, assignment of chaplains to battalions in regimental area, chaplains' programs and activities and related problems arising out of the chaplains' program. Arrangements were made between the two chaplains' sections involved, with regard to chaplains' property and supplies, both Quartermaster and Chaplains' Fund property.

This phase was resolved by correspondence with the Regimental Chaplain of the returning unit.

2. *Inspection and Initial Observation.* A chaplain was in the advance party of *Gyroscope.* He consulted with and observed the chaplains' program and activities of the 2d Regiment and reported back to us his findings and recommendations with regard to the chaplains' program as he saw them in operation.

3. *Orientation and Adjustment.* With the arrival of the 3d ACR in Southern Germany and completion of *Operation Gyroscope,* the newly-arrived chaplains' section began at once experimenting and testing the suggested chaplains' program and activities. This phase of orientation and adjustment is now going on. Where a certain program or activity is not functioning as satisfactorily as desired, an adjustment is made to see if, by that change, the chaplains' program can meet more adequately the religious and moral needs of the men and dependents.

In the pre-planning stage of *Gyroscope,* it is recommended that the chaplains of the unit moving overseas secure as much information as possible from the returning unit, with regard to location of units, distance between respective battalions of unit, chaplains' programs and activities carried on by the chaplains' section of the returning unit and the problems encountered by the unit while they were in the overseas area, so that the unit due to go overseas in *Operation Gyroscope* may begin to function as satisfactorily and as quickly as possible and vice versa.

MAJOR NATHAN T. HELM

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The writer of the following article has been a service wife for approximately ten years. Her husband served with the U. S. Navy in the Pacific during World War II. In 1947 he transferred to the Army and became a Master Sergeant. He was commissioned in 1949 and served in Korea during 1951-52. The Johnson family served a year at Camp Carson, Colorado; a year at Fort Knox, Kentucky; and several months at Fort Meade, Maryland before moving to Germany with the Regiment on Operation Gyroscope. The Johnsons have three children, ages 8, 7 and 2. He is a pilot with the Regimental Air Section, 3d Armored Cavalry Regiment.

Mrs. Johnson

Family Problems

Early in April this year we received the most exciting news we had had in years: we were going to Germany. In nearly ten years of being an Army wife, this was my first chance to go overseas, and I was going to be one of the lucky ones to have my husband with me all the way. I was "going Gyro."

When I packed, I tried to follow the directions in the booklets carefully, so I made only one bad mistake. I took just the barest of necessities in my hold luggage and until our household goods came I was really having a time running my household. My only real complaint was that I did have to wait for my household goods since many necessities were not available in my hold baggage.

A *Gyroscope* move has many distinct advantages over a non-coordinated travel move. I had my husband with me all the way. He was invaluable in helping me keep track of the children, attend lectures, chase luggage and do the million and one other things that accompany a move such as this. I felt sorry for some of the non-*gyroscope* dependents, waiting 3 to 5 days at Fort Hamilton alone with two and three children. They were really having a hard time without men to help them. If for no other reason than the family angle, going overseas together is a wonderful idea. This way, we will be together for a set length of time. Children take it pretty hard when they have to say goodbye to their father or their best friends every few months.

The trip on the ship was pleasant. The children were in a nursery several hours a day and the parents had a chance to relax and get acquainted with their new associates. We got to know each other as a family group. This was particularly good, as one is sometimes in an outfit for months before he or she gets the couples sorted out properly, as to who is married to whom.

The trip was nice for me as I got a chance to see my husband for ten uninterrupted days. That was more than I had seen him at one time in the previous six months. I was not alone in this respect.

When we landed, we were taken aboard waiting trains and each family had one or more roomettes, depending on the size of the family. They were clean and comfortable and helped put a nice ending on an already pleasant trip. We were taken non-stop to our new homes. When we arrived we were met by our sponsors, American military personnel, who have been in the area for some time. These sponsors took us to our quarters, briefed us on things they thought we should know, and helped us in many, many ways. Some went so far as to have dinner ready for their charges. Other sponsors took care of their families for several days by driving them around town, pointing out the PX, commissary, and other points of interest. Before we left the States, we had been given a chance to order groceries. These were in our quarters when we arrived. For those that did not order groceries, the commissary stayed open extra hours so that no family would be without food. They also delivered our groceries until the cars came.

There has been confusion, of course, but have you ever had company drop in unexpectedly or on very short notice? Our quarters were vacated two days before we arrived, but necessary repairs and maintenance were taken care of in a relatively short time.

The move, in my opinion, was very successful, and I have yet to find a *3d Cav wife* who is unhappy about being a part of *Gyroscope.* There is so much to see and do, and it is nice to share all these first impressions with our men.

MRS. EDWARD L. JOHNSON

Economy versus Realism

At a press conference held recently, which we were privileged to attend, General O. P. Weyland, USAF, stated that Exercise Sage Brush, to be held in Louisiana, will be the largest peacetime maneuver staged by the armed forces since World War II. General Weyland is the maneuver director and unified commander for the exercise. On his staff he has Army and Air Force officers interspersed, working out inter-service problems. Naturally for the next month and a half the Army and Air Force will be concentrated toward the Louisiana maneuver área. Likewise, the press of the country will be covering this huge exercise, which will employ over 110,000 Army troops and some 30,000 Air Force Personnel.

At the same time that this information was released, word was received that the Camp Polk area was reactivated as a permanent post and the III Corps and 1st Armored Division would be stationed there after the maneuvers had terminated. One paragraph within the press release involving Fort Polk set the wheels in motion and injected some provocative ideas. It stated:

> "The State of Louisiana has entered into an agreement with the Army to insure 15 year maneuver rights to usable areas within a 7,000,000 acre tract."

We applaud the far-reaching thinking of the Army in obtaining an area where maneuvers on a joint service level can be held for sometime to come. Despite cut-back in funds it is indeed a tribute that the Army and Air Force can train troops on such a huge scale. In obtaining this area for an extended period of time the Army and Air Force should be able to annually field test units, organizations and equipment on an increasingly larger scale. With the assignment of the III Corps to Fort Polk the Army has a permanent staff available for long range planning for future maneuvers to be held in that area. There is also an annual saving to be realized in administrative costs by utilizing the same area rather than contracting for land in different locales.

It is believed, in the interests of economy, that the Army should consider establishing a motor pool concentration of all type vehicles in the Fort Polk area similar to the system used by many National Guard units. For example, the 27th Armored Division, 50th Armored Division and 26th Infantry Division concentrate many of their vehicles at Camp Drum, hence saving on transportation costs to and from home station. In addition the Reserve units utilizing Drum also draw on this pool.

The permanent assignment of the 1st Armored Division to Polk concentrates a huge number of vehicles on location, so to speak. This eliminates the additional cost of moving an Armored Division to the maneuver area every time an operation is planned. With the supporting elements to an Armored Division also being assigned to Polk there is a concentration of skilled manpower for servicing of vehicles and establishing a concentrated motor pool, thus eliminating the moving of many items of equipment into the area.

Another economical problem is here posed. To avoid the costly move of expensive tracked vehicles to and from Polk by additional participating units, there seems to be a need for a cheap, inexpensive training maneuver vehicle which can be used as a tank, Armored Personnel Carrier, or self-propelled Artillery vehicle. This statement does not infer that a wooden silhouette can be put around a $1/4$ ton vehicle and call itself a tank. There was too much of that type vehicle seen in the early '40s when, due to shortage of equipment, wooden guns were employed to simulate the real thing that was not yet out of the factory. But it would do well to explore into the feasibility of developing a full-tracked vehicle which has similar characteristics to a tank, Armored Artillery piece, or APC which can be drawn when arriving in the area and used for the maneuver. It could be a stripped-down tracked vehicle. Sights, range finders and other expensive items could be brought from home station to make the equipment more realistic. If it proves more satisfactory to develop an inexpensive full-tracked vehicle than utilizing a stripped-down version, then its weight, maneuverability and silhouette should approach that of the real thing. Wheeled vehicles could be stored at Polk and used as the situation dictates.

If there is some doubt as to obtaining realistic characteristics on a cheap vehicle, a column of simulated medium tanks, for example, can be led by two or three actual combat vehicles. Thus, the logistical problems can be geared to the speed, fuel consumption, and cross-country mobility of the actual vehicle. Likewise, the tactical situations could be developed accordingly.

The initial cost of developing such a vehicle and instituting such a system would undoubtedly appear high. But not nearly so excessive as the cost in moving expensive equipment in and out of the area every time a unit is designated to participate in a maneuver.

Thus, the Fort Polk area can be the laboratory for field testing equipment, organization and tactics on a grandiose scale. It only needs the ingredients—the clean test tubes, i.e., vehicles, mess equipment, and standard items, are already there. Set up the problems, send in the personnel and have them obtain the solutions. In such manner we can prepare for future conflict as economically as possible.

Woltz Studio

LIEUTENANT, ARMOR, COMPANY COMMANDER

By FIRST LIEUTENANT ROBERT S. McGOWAN

THE goal of any young, eager, ambitious first lieutenant is, of course, to be a company commander; to be "the old man" of a complete, self-sufficient, fighting unit. You, who have just received your silver bar, are no exception to this rule. During your apprenticeship as a platoon leader and company executive officer, you have had all the extra duties these assignments entail —Supply, Maintenance, Postal, Safety, TI&E, Savings and Bonds, A and R, Morale, member of the unit fund council—the works. You have watched, listened and learned from "the captain" who is your own company commander and your teacher. You have seen how he operates, and have probably formed your own ideas of leadership and techniques of command which you feel may be just a little bit better.

The realization of this burning ambition becomes a reality when your battalion commander says to you, "Captain Jones is on orders for overseas. He leaves next month. Do you think you are ready to take over A Company?" You have stood tall before with pride and esprit, perhaps at a parade, but never so tall as you smartly, and from the bottom of your heart, say, "Yes Sir!" "Fine," says the Colonel, "you can start checking property Monday morning."

It is now Thursday—you have the rest of the week to prepare for the task that, when completed, will make you personally responsible for well

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FIRST LIEUTENANT ROBERT S. McGOWAN, a 1952 graduate from USMA, commanded a Tank Company in Korea during the latter days of hostilities and the cease fire period. Returning Stateside he commanded a Tank Company in the 4th Armored Division at Fort Hood. He is presently Aide to General Waters and en route to Yugoslavia.

over five million dollars of government equipment. The old and worn phrase "the company commander is responsible" will soon apply to you. Too often when a young officer signs over a company, he inadvertently overlooks certain items, or feels that the smallness of a particular piece of equipment will allow an incomplete check, or he just does not know that other equipment is nonexpendable, and that he will assume responsibility regardless.

Certainly you should formulate your policies and standards. You are taking over a job with tremendous responsibility. The safety, welfare, and very lives of the hundred-odd men in your company will soon be your responsibility. Division, Combat Command, and Battalion Commanders issue the orders, but you are the link in this chain of command that insures that the mission, whatever it may be, is accomplished. Yours will be the job that is often frustrating and discouraging, but more often it is the one job in the Army that can satisfy and completely fill the inner desire of accomplishment. Think out your policies carefully. They will mean much to you and your company in the future.

Your first task as the new company commander will be to check property. You have a lot of work to complete before Monday morning rolls around. Keep these thoughts foremost in your mind during all property checking. You are concerned with only two things: first, that every authorized item of equipment, from the largest tank to the smallest Allen wrench, is either physically on hand or on requisition; and second, that everything is in a serviceable condition. Shortages of OVM on each individual vehicle, components of tool sets, spare parts, and other items either signed out or physically in the supply room, are the responsibility of the company commander. He must show you how these items are accounted for. Overall figures are your only concern.

Visit your battalion S4 as soon as possible. Talk to him and get his impression on how your new company supply operates. Of course you will find this out later by yourself but his views and impressions are valuable. Also look over the past inspection reports to find out the conditions of records. While there, get the S4 to make out a new, consolidated Hand Receipt for all equipment issued to your company: special service equipment, rakes, lawnmowers, and the like, and the buildings used by the unit. Be sure fire extinguishers, screens, and keys, bathroom fixtures, drinking fountains, installed kitchen equipment, when applicable, are listed. Also, borrow the S4 copies of all publications pertaining to items of equipment in your company. Each weapon, vehicle, and separate item, such as cooking stoves, mess equipment, lanterns, and tool sets has its own publication. Here you will find the authorized quantity, as well as related equipment necessary for the proper utilization and maintenance of the major items. You will use these later.

Borrow the company property book and the T/O&E your company is currently using. Make sure there is a page in the property book for each item listed in the T/O&E. Also check that the number in the "on hand" column in the property book page agrees with the amount authorized in the T/O&E. Spot check several vouchers to see if they are properly posted. Make a note of any discrepancies, and ask the departing company commander to explain these differences. There may be letters of special authorization changing the quantity of an item from the number listed in the T/O&E. It is a good idea to visit other companies in the battalion to insure no property has been issued on loan to your new company. If you find that some items have been issued, request the company commander to return the property prior to your physical count. That should prepare you for the joint inventory.

When Monday morning rolls around, arm yourself with a clip board full of blank paper, several pencils, and a mental attitude that the next few days are going to be full, tedious, and hectic. Remember, the inventory will go as you want it: sloppy if you are careless, accurate if you are careful. A good job now will save you headaches later.

Start with the Hand Receipt the S4 prepared for you. You should pencil in items physically present, and record by stock number and full nomenclature those that are missing. A quick inspection of the barracks, orderly, supply and day rooms will be sufficient to insure all fire extinguishers, screens and windows are accounted for, and in good order. Any cracked windows, broken screens, or damaged walls must be put on work order over the old company commander's signature. Make a note of needed repairs.

Moving into the arms room—have the armorer nearby with the weapons work order file. With the property book, check off each weapon by serial number. A pencil check by the number in the property book will prevent re-counting the same weapons. While checking the weapons, and you should do the recording in the property book, check each weapon for serviceability. You will not be able to see much at a glance, but glaring deficiencies, such as dented bazooka tubes, missing rear sights, etc., will be caught. Again, the old company commander must initiate the necessary work orders. After each weapon is accounted for, either by being physically present or on work order, use the applicable publications for each type weapon to check the non-expendable tools and equipment authorized. This includes holsters, pistol screwdrivers, slings, cleaning rods and cases, carbine magazine covers, magazines, oil and thong cases, and the like. Record, by stock number, nomenclature and quantity the items that are missing. This will take time, but in the end the extra effort saves going back over the same publications.

Next the supply room. While checking items here, have a detail set up all tentage and unfold all tarpaulins. This is the only way to inspect for serviceability, and it will permit proper counting of the poles required. Also have the mess equipment set up outside, with all parts completely broken down. There are many items that must be checked in the supply room, so take them one at a time. Again use the applicable publications as check lists. The individual cooking stove wrench, for instance, is a non-expendable item, and must be counted. It is also a good idea to check if expendable spare parts are on hand. If they are not, you will want to requisition these later. Make sure you check the carpenter's tool set and the mechanic's tool sets that are not in use. Should your company have panel and flag sets, have them all opened; this way you can make sure you have the right amount, and that all are serviceable. Do the same with gas masks. Remember, on hand and serviceable. Check only T/O&E property now; you will get to station property later.

Your biggest headache, of course, will be in the motor pool, but with careful attention to detail, you can assure yourself that you have made an accurate check. Have all the mechanics lay out their tools, and go over them one by one. While you are doing this, the rest of the company can be laying out the tank and other vehicle OVM. Use the SNL as a check list; this way you can be sure of an accurate count. Again, record all shortages, together with the mechanic's name who is signed out with a particular set.

It is up to the old company commander to decide how he wants to handle shortages, but a good idea is to have the supply sergeant along with you, with the individual Hand Receipts; that way the decision can be made on the spot if an item is to go on a Statement of Charges, or is to be accounted for in some other way.

It is the best time to redate and renew hand receipts during the actual counting of property. The old hand receipts may be used, depending on local rule, just by adding the new date and obtaining the individual's signature. Numerous supply sergeants and section chiefs have borrowed equipment to cover up shortages for a previous commander or to protect themselves. Be sure that signatures are obtained on the spot. Then if items are borrowed the person concerned can sign a S/C or survey them. Be sure that if an item is not in the supply room you have a signature for it.

Normally the second echelon mechanic tool set, and the special set A's (one for each type of vehicle) are on a display board. PM magazine number 35, 1955 series (a maintenance publication put out by Ordnance) has a picture of each tool in the second echelon set. Get a copy of this, and use it. If you still are in doubt about certain tools, have the battalion maintenance officer or sergeant help you. They are the experts, and are there to give you assistance. To avoid checking the same item twice, take the tool from the board as you check it. This might seem trivial but it will help you later.

Moving on to your communications shop, it is the same story; use the publications, record all shortages. If at all possible, have all radio sets dismounted and checked here, by serial number. Once more you will need the property book.

Before checking vehicle OVM, look over each vehicle for completeness; ¼ tons for tops and side curtains, broken windshields, good spare tires and tubes, lights, and horns: 2½ tons for the same, and remember that there are front and back curtains for the tarp. Roll up the windows and check them also; trailers for bows and gates, tarps, end curtains, brakes and electrical connections; tanks for fenders, escape hatches, antenna base mounts, fire extinguishers, muzzle deflector locks, external phone box and the complete contents therein, serviceable batteries, elevation quadrants, serviceable 50 caliber machine gun mounts, armament, seats and seat bucks, coaxial solenoids, antenna lead-in wires and dust shields. All of the above items are not listed on any check list, but they are non-expendable and you will assume responsibility for them once you take over the company. It pays to do a complete job on this particular subject.

As for the actual tank OVM, do not let the size of a particular item lull you into not making a complete and thorough check. The pamphlet bag assembly, for instance, costs over ten dollars. Do not forget, among other items, the Allen wrench set, the 50 caliber machine gun cover, the track blocks, and the M6 cleaning brush. If you have different models of tanks, you will need a separate publication for each type. Periscopes may give you some trouble, as some tanks have different models. With the correct publication, and a careful eye to detect any defects, you should be all right. As for communications OVM count the antenna sections (non-expendable on some posts), hand microphones, spare fuze and tube box, and the spare antenna roll. It is also quite likely that you will have different models of headsets, chestsets, and cords. This is quite acceptable, as long as each type set is complete. Again, record the shortages.

Back to the supply room for station property and individual T/O&E property. This, your last big inventory, will probably be the most difficult, because items are out in the hands of the troops, in the laundry, on work order, and several other places. It is best to set a date in advance for this check, to give your men enough notice to assemble all their equipment. Then, with their 191 Forms, check each man item per item, from the wall locker to the last tent pole section. This includes sheets, blankets, pillow cases, and so on. A Herculean task, but one that is well worth the effort. Compiling the results is a comparable job. With laundry lists and what is on hand in the supply room, complete the figures. In checking anything that is encased, such as sleeping bags, have the item taken out of its cover. Too often an item is damaged or is missing altogether.

When you finish this compile all shortages and overages. The old company commander can use these later to be sure. In crediting due outs in the company supply records, record only recent and complete requisitions. For requisitions only partially filled, and ones over three months old, record the requisition number and the item or items in question and go to the S4 to check out their copy of the requisitions in question. Too often an item may be received in the unit and the supply sergeant may forget, or be too busy at the moment to post the original requisition.

Then, when all items due out are properly credited, compile an overall "over-short" list. Keep one list, give one to the old company commander and one to the supply sergeant. Depending on local rules, the old company commander has from 15 to 30 days to make up all shortages. He also must initiate all work orders for any items that must be repaired. Be polite but insistent. You and the supply sergeant may have to burn the midnight oil to get all the paper work done but it is time well spent.

So there you are, Lieutenant, you have performed your first task as Company Commander. You are well under way to earning that coveted title, "the old man." Be fair and just; set your standards and stick to them, and keep a tight rein on your supply procedures. A big milestone in your Army career is yours, for you are now *Lieutenant, Armor, Company Commander*. Good luck!

CMI

U. S. Army

How Can We Improve the Command Maintenance Inspections?

Some form of inspections to assure compliance with regulations as they apply to maintenance within a unit are necessary. Are we utilizing the best possible procedures?

By 1ST LIEUTENANT ROLAND D. TAUSCH

As a result of having a larger number of personnel engaged in what is essentially non-creative labor, the Army often uses its manpower as the cheapest, most expendable material available. Men are not standing at a production line where their time vs. movement effort can be accurately gauged; rather they can be employed at will. In the Army of twenty years ago false economy meant a lack of hardware, of capital goods and equipment developed to aid the Army in expediting its training and preparing for its true mission, success in combat. The practice of using cheap labor became widespread because manpower was the only plentiful material. The attitude thus created has not been entirely shaken off.

The increased demand on the time of the soldier, the increased complexity of modern arms and equipment (for the infantry soldier as well as the atomic artilleryman) and the increased quantity of knowledge essential to self-defense and survival on the battlefield in atomic combat have combined to absorb much of the twenty-four hour day. These increased training requirements, coupled with the details of maintenance, administration and enforcement of discipline, severely tax the capacities of the best NCO's and men. To heap on them exaggerated demands of a Command Maintenance Inspection (CMI) with a complete cessation of training and other productive effort for periods exceeding several days in duration and occurring several times during the

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year is too much; such action hamstrings efficiency. The deplorable waste of man hours resulting from the malpractices which inevitably grow from the overuse and misuse of the CMI is destructive to unit morale and leaves a distinctly bad taste in the mouths of regular soldiers and those visitors to the military establishment (as draftees) who ultimately decide the fate of the Army through the exercise of their franchise.

In order to substantiate this statement, let us consider some examples of what can occur and of what has actually occurred in the use of that means of attempting to determine the efficiency of a unit. The CMI, sincerely enough, is intended to probe every nook and cranny of an organization to determine its status of efficiency, its compliance with regulations and the combat readiness of its equipment.

The tank company in Europe can serve as a good example for a CMI through which we will mentally work our way. In view of the heavy requirements for field training, the continuous turnover in personnel and the need for constant retraining in fundamentals, the company is rarely more combat ready on one particular day or month than on another. The unit must maintain its equipment as nearly combat ready at all times as possible despite constant usage of its radios, vehicles and guns; therefore, any date which coincides with a time in garrison is satisfactory for a CMI.

This CMI is scheduled for some time in May. The date is announced, let us say, only two days in advance; however the company commander by the use of logic can arrive at a fairly accurate prognostication of the date well ahead of time.

The battalion and/or regiment holds its own CMI first to check the company. Another check CMI is held by each headquarters junior to the CMI authority. One would assume that the various commanders are not aware of the condition of their companies since they require a formal inspection of the unit, but they do not usually hold their inspections for that purpose. Most commanders already know what the problems and deficiencies are in their units.

The battalion inspection is held in April. The men work night and day, often disregarding or slighting valuable make-up training which the company commander feels his company needs. Generally, at least five days are lost, the men are drawn to a fine edge and the unit makes a maximum effort. Grease smears, which will inevitably reappear within two minutes after the inspection when the vehicle is moved, are carefully cleaned away from suspensions. Paint is liberally applied to cover a host of sins, particularly where sufficient time is not available to properly clean and sand such surface first. The paint will peel and wash off within days after its application, but it looks good. Ordnance could have accomplished the same painting job infinitely better by scheduled maintenance, but the individual commander would have derived less personal credit from such an arrangement. Tools are given a polished, rust-free, chip-free cutting edge, the like of which they will never see again until next May. "Fatigues," normally cleaned and pressed in a good company, are placed in an exaggerated state of cleanliness which belies the name "fatigues" and which will not be seen again until next May. All in all, men and equipment are brought to a high degree of perfection in condition and appearance which reflects credit on the company. This will be a splendid CMI.

The company is ready. A team of experts arrives. They are "here to help you." Each man on that team has the air of a Scotland Yard Inspector with a degree from Massachusetts Institute of Technology. He is there to discover the many heinous crimes committed by the leaders of that unit, all of whom are obviously members of a conspiracy to cheat their superiors, to defraud the government and to undermine the standards of the U. S. Army. It is the God-given duty of this team to apprehend the criminals and to bring them before the bar of justice, the critique.

After several hours of mentally and emotionally exhausting harangues between members of the unit and of the team promulgated by a remarkable series of nit-picking, the team has completed its task. The leaders of the unit are assembled, and the critique commences with "This is a fine company. The men did well; but. . . ." The "but" takes at least an hour; however, it includes only the outstanding results of the CMI; the detailed description will follow later on paper. The company commander can only say "Thanks." It was good of the team to point out the multitude of deficiencies of which he was already aware, and could have saved them a day wasted in discovering. Of course out of the twenty or thirty gigs, there were at least three items contained in obscure directives, or publications not distributed to the company, of which the commander was not aware and from which he can profit.

After restoring morale and soothing tempers of the men in his unit who were gigged, the company commander settles down to correct as much as he can. Training is restored to quasi-normalcy. There is a natural letdown on the part of the men who worked hard for hours in the hope of seeing a nod rather than a shake of the head of some passing inspector who glanced casually at the soldier's "shining glory."

Then there is a clap of thunder. The CMI is coming up. Training out the window, morale down the drain and spare parts under the floor. The whole wasteful process must be repeated again.

There are many valid arguments to defend this process. A unit occasionally needs an opportunity to clean up and clean out. A threat of thorough examination by higher headquarters stimulates activity otherwise rarely seen. The ability to score high on a CMI may reflect a good unit, a good commander. An outfit which cannot produce under strain, which does not carry out *all* directives and which does not maintain its equipment has a poor chance in combat. Nevertheless, the effectiveness of one good CMI does not reduce the damage caused by others conducted improperly, and the one cited above is not unique—it's COMMON. The potential evils of the system are there; and when practiced, the results are unfortunate.

The CMI is based on a cyclical system of training and maintenance. Theoretically, the unit trains for a year building from advanced individual training to advanced unit

U. S. Army

Units can and should practice maintenance procedures on a continuous basis.

training; however, in actuality a unit in combat-ready status with a continuous flow of replacements does not train itself in this manner. Nor does it develop its administration and maintenance along these lines. Regardless of the phase of training being conducted at any precise time, field training and combat-readiness requirements are continuous; and a peak period of performance is never reached, nor sought, over the long haul. The CMI may be effective for a training division in the States preparing for overseas movement; but for a unit in Germany, it is not the best method to insure combat-readiness.

Does the Chevrolet Division of General Motors suspend the manufacture of automobiles for ten days while the Chief inspects tools and the plant to determine their working condition? Does the bookkeeping department suspend sales for ten days while the auditor inspects its books? No.

The fact that CMI's are conducted throughout the Army as a matter of habit and tradition does not preclude their abolition. The tradition is entirely a negative one. Higher headquarters can inspect its units without bringing all training to a standstill. Units can practice good maintenance over the whole year without terrific "buckups" being necessary. All right, so any good company can be ready for inspection any time—why not inspect it *any time* and at *any place?*

The answer to that question is the answer to the CMI problem. By repeated impromptu visits, a commander can determine the status of his companies. Staff visits can reveal compliance with the details of existing regulations and can offer on the spot correction, referred to the higher headquarters for a check on "follow-through." A division ordnance officer, or his qualified representative, can rapidly check a company for existing modifications and can require correction of deficiencies without interrupting the operation of a motor pool. A mechanic who doesn't keep his tools in condition in January, February, March and April can still pass a CMI in May.

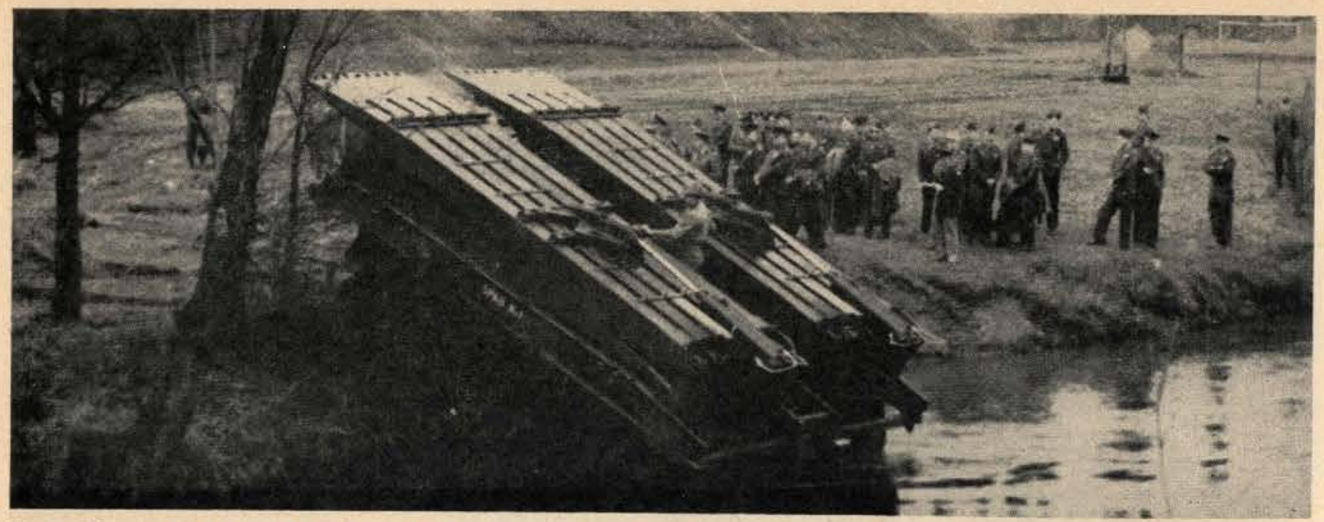
If a team is necessary to stage a CMI, it can accomplish the task without causing the cessation of normal training and work. A company which has only twenty days for maintenance and make-up training in garrison cannot afford the man-hour waste of 10 days and nights (2 CMI's) such as were cited in the example. It also cannot afford the great rise and fall of effort which accompanies the tide of the formal CMI. Let the inspection consist of a surprise visit by regular staff sections if they must descend *en masse*.

As usual, a practice is easier to criticize than to improve upon. Our desire is to accomplish the objective of the CMI without its disruptive effect. This must be done if the dissipation of our resources in man-hours and in morale is to cease. Staff sections and technical services must repeatedly visit the units and report upon their findings. This does not preclude on the spot correction and help for companies where needed; rather it encourages such help. The commander whose outfit is good, who has nothing to conceal, would welcome such an interest in his problems. If the various phases of the inspection were staggered by surprise visits of different sections on different days, the analysis of strengths and defects would be equally accurate. More important, the commander would have more opportunity to correct gigs spaced over the period of a month or so than he had under the previous system. Lastly, the immense bugaboo of CMI would be less of a shock on the already worn nerves of that favorite candidate for ulcers, the company commander. The men would regard the inspection as something beneficial rather than a further effort to plague them. Only the company which is in severe need of a change should fear such an inspection system; and, if a change is needed, it doesn't require a CMI to uncover the fact.

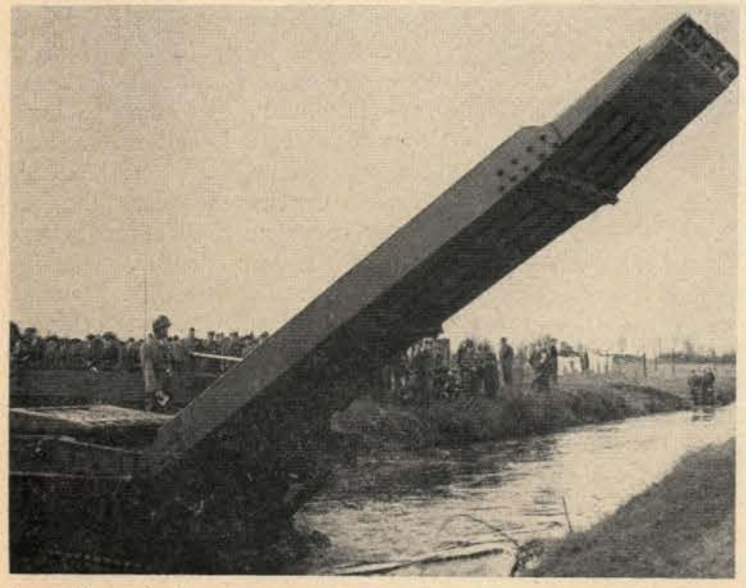
Fear drains the energy of our commanders. Fear of CMI seems foolish, but inevitably mushrooms. If inspection of communications, of training and of small arms could occur any time, there would be no opportunity for fear to dam up. When the leaders and the men of a unit are busy concentrating on training and its concomitant problems, they are too busy to worry about inspections; but when training is set aside, when an inspection looms, concentrated on one specific date, paralysis sets in.

Schedule annual or semiannual or quarterly inspections, but don't descend like a horde of locusts one day each year. Spread the phases of annual inspections over longer periods and make the effect continuous.

There is nothing "combat ready" about an OVM layout. You may look good in your Sunday-go-to-meeting clothes, but how do you look on Tuesday afternoon in the motor pool? Superior or poor? That is the answer that counts.



The self-propelled assault bridge (SPAB) which is mounted on the M4 tank chassis is shown nosing into a river.



A section of the treadway rises and reaches for the far bank.

The SPAB

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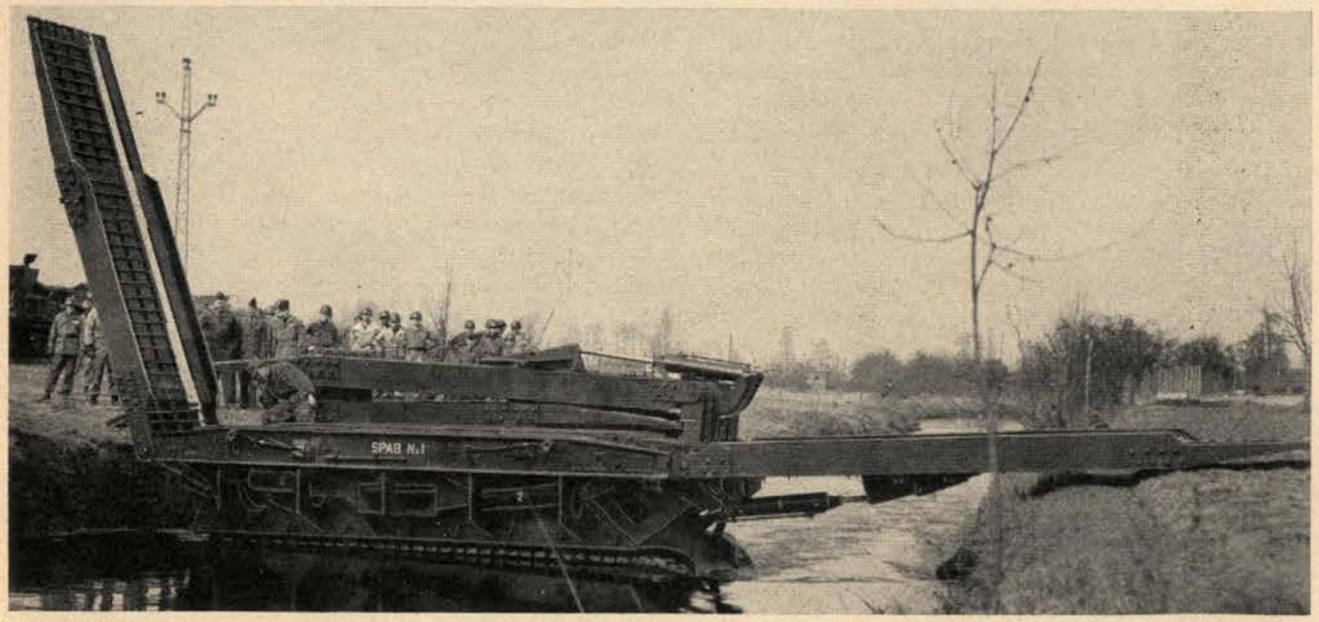
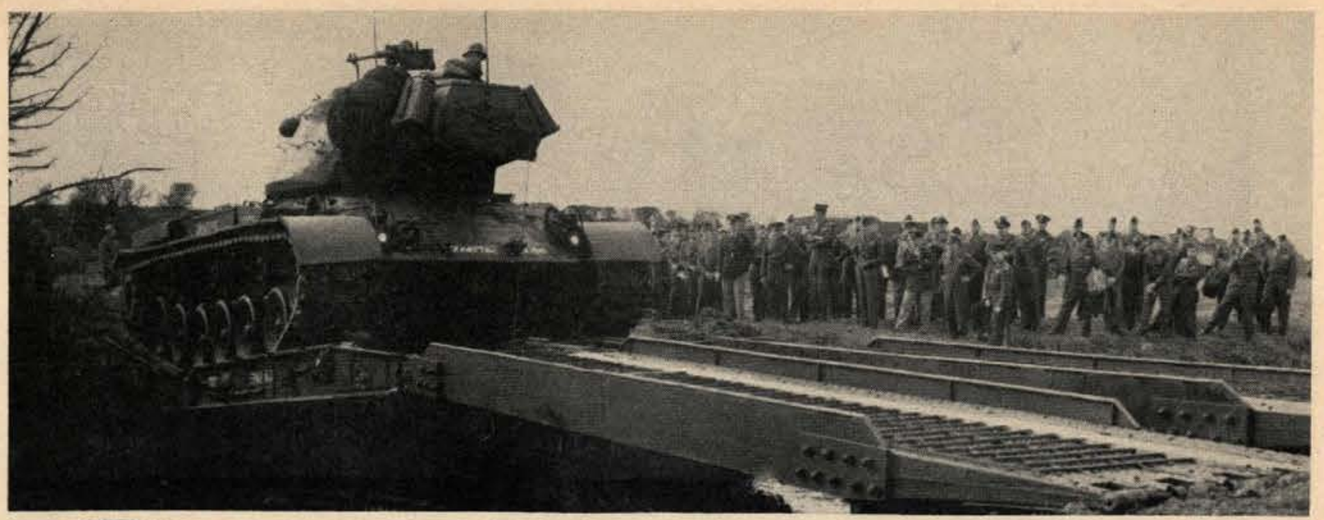
This three-section self-propelled assault bridge was born as a result of Armor's concern with the problem of small obstacle crossings, which can only be accomplished by bridging. The SPAB is capable of spanning gaps measuring approximately 60 feet. The bridge section is permanently mounted on top of an M4 (Sherman) tank chassis. The center portion of the bridge is welded to the top of the chassis, with hydraulically operated hinged sections at both ends. When not in actual use, the two end sections fold back onto the center section. Many bridges have been developed to overcome these small obstacle crossings. However, prior to the introduction of the SPAB, most types exposed the engineers to enemy fire. The SPAB was conceived and a pilot model built under the direction of Major General Hamilton H. Howze, Chief of the Army Aviation Division, G3, Department of the Army, when he was the Assistant Division Commander of the 2d Armored Division in Europe.

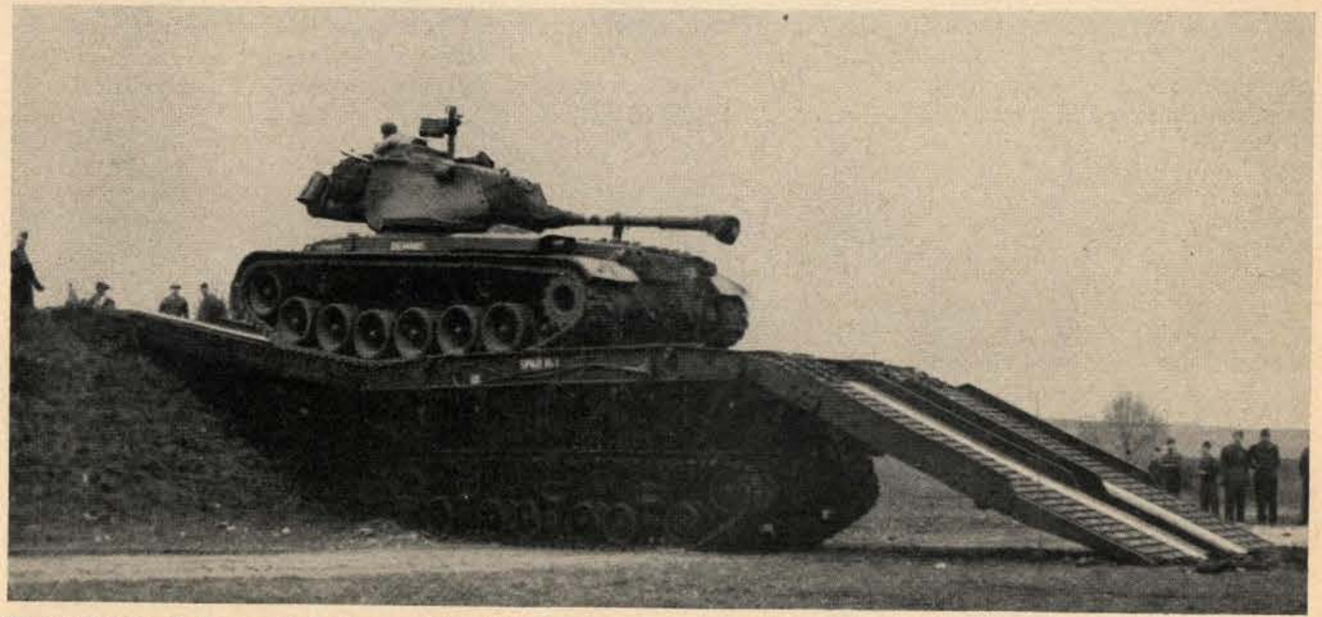


Note that the self-propelled assault bridge is capable of spanning a deeper and wider river than is shown here.



An M47 tank crosses the SPAB over the river. It would have been impossible to negotiate the river by itself.

Mission completed, the SPAB is ready for the next obstacle.



The self-propelled assault bridge enables this tank to negotiate this steep railroad grade and move into combat.

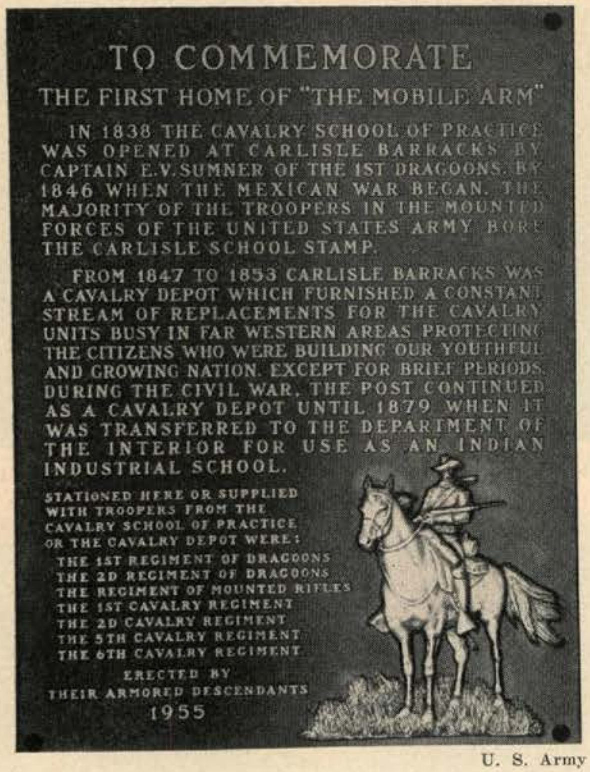
CARDED

The First School of the Mobile Arm:

CARLISLE BARRACKS

Dedication Address

by Major General Guy V. Henry



TO COMMEMORATE
THE FIRST HOME OF "THE MOBILE ARM"

IN 1838 THE CAVALRY SCHOOL OF PRACTICE WAS OPENED AT CARLISLE BARRACKS BY CAPTAIN E.V. SUMNER OF THE 1ST DRAGOONS. BY 1846 WHEN THE MEXICAN WAR BEGAN, THE MAJORITY OF THE TROOPERS IN THE MOUNTED FORCES OF THE UNITED STATES ARMY BORE THE CARLISLE SCHOOL STAMP.

FROM 1847 TO 1853 CARLISLE BARRACKS WAS A CAVALRY DEPOT WHICH FURNISHED A CONSTANT STREAM OF REPLACEMENTS FOR THE CAVALRY UNITS BUSY IN FAR WESTERN AREAS PROTECTING THE CITIZENS WHO WERE BUILDING OUR YOUTHFUL AND GROWING NATION. EXCEPT FOR BRIEF PERIODS DURING THE CIVIL WAR, THE POST CONTINUED AS A CAVALRY DEPOT UNTIL 1879 WHEN IT WAS TRANSFERRED TO THE DEPARTMENT OF THE INTERIOR FOR USE AS AN INDIAN INDUSTRIAL SCHOOL.

STATIONED HERE OR SUPPLIED WITH TROOPERS FROM THE CAVALRY SCHOOL OF PRACTICE OR THE CAVALRY DEPOT WERE:

THE 1ST REGIMENT OF DRAGOONS
THE 2D REGIMENT OF DRAGOONS
THE REGIMENT OF MOUNTED RIFLES
THE 1ST CAVALRY REGIMENT
THE 2D CAVALRY REGIMENT
THE 5TH CAVALRY REGIMENT
THE 6TH CAVALRY REGIMENT

ERECTED BY
THEIR ARMORED DESCENDANTS
1955

U. S. Army

Carlisle Barracks, Pennsylvania, the home of The Army War College, added another significant milestone to its star-studded historical past which dates back to 1757. On the 7th of October, the plaque honoring the establishment of the first School of Cavalry Practice was unveiled. Present for the ceremony were: Major General Guy V. Henry, Retired, who gave the dedicatory address; Lieutenant General W. D. Crittenberger, Retired, who laid the horseshoe-shaped wreath at the base of the monument after General Henry's address; Major General D. W. McGowan, Chief, Army Division, National Guard Bureau; Major General L. L. Doan, Chief, Armor Section, CONARC; Major General A. H. Stackpole, Commanding General, 79th Infantry Division; Major General C. V. Bromley, Commanding General, The Armored Center, Fort Knox; Colonel R. G. Lowe, Chief, Armor Branch, Career Management Division, The Adjutant General, D/A, and the Secretary of the U. S. Armor Association. Brigadier General Thomas W. Dunn, Deputy Commandant of The Army War College, was the host for the day. Following a luncheon at the Officers' Club, the official party, which included the visitors named above as well as members of the Army War College Staff, moved to the Dragoon Circle where the host introduced General Henry, who addressed the group which comprised the student body of the School.

IT is indeed an honor for me to represent the United States Armor Association at the unveiling of this plaque which commemorates the establishment of the Regular Army's first school for its mobile arm—Cavalry.

As many of you probably know, the project for this plaque was sponsored by the United States Armor Association. However, it should be pointed out that the descendant units of the cavalry regiments previously stationed at Carlisle Barracks contributed a great deal of the funds necessary for the plaque. That was right and proper as the Army reorganization act of 1950 established Armor as a separate branch, designating it "The Continuation of Cavalry." Armor today is recognized as the arm of ground mobility similar to the horse cavalry of old.

I will read General Orders No. 12, Adjutant General's Office May 14, 1838, establishing the training center at Carlisle Barracks:

"1. With a view of instructing the recruits intended for the Dragoon Service, all the men enlisted for that arm will hereafter be sent to the Barracks near Carlisle, in the state of Pennsylvania, where will be established the principal depot under the direction of an officer of Dragoons.

"2. Captain E. V. Sumner of the 1st Regiment of Dragoons is appointed to the command of the Depot: He will conduct the recruiting service in conformity with the regulations, and see that all the recruits are well instructed in the infantry as well as the cavalry tactics.

"3. The Dragoon Officers employed on the recruiting service will report to Captain Sumner as the Superintendent, who will make his reports and returns direct to The Adjutant General.

"4. The Quartermaster's department will take the necessary measures for the repairs of the Carlisle Barracks, and the erection of stalls for ninety horses, which will be commenced without delay.

"5. Captain Sumner will make his requisition for Dragoon horses not to exceed 80. Hereafter, the number to be provided for a troop of either regiment of Dragoons will not exceed 64—unless otherwise directed from General Headquarters.

"BY ORDER OF MAJOR GENERAL MACOMB:
"R. JONES, ADJT. GENL."

At the time of the issuance of this order there were two regiments of Dragoons. The 1st was active along the Missouri and Mississippi Rivers, our then western frontier. The 2nd was engaged in the long and bloody Seminole Indian War in Florida. The 2nd Armored Cavalry Regiment is its descendant. Its colors carry the battle streamers of that war. Its color guard, in the uniform of the Old 2nd Dragoons, stands with us today.

The general order just quoted established a Dragoon Training Center and directed the Commanding Officer to "see that all the recruits are well instructed in the infantry as well as the cavalry tactics."

A Dragoon was a cavalryman trained in the tactics of both arms and armed to fight on foot as well as on horseback. By European standards American cavalry has always been classed as Dragoons. In the great armies of Europe there were two other classes of cavalry: Light Cavalry—*Chasseurs* or *Hussars*; Heavy Cavalry—*Cuisseurs* wearing a *cuirasse* or breastplate. These two classes defended primarily on mounted combat. The European Dragoon never had the efficiency in dismounted combat of American Cavalry. The Cavalry lessons of our great Civil War seemed never fully learned in Europe.

The descendant Armored units that carry the honors and colors of the old Cavalry regiments whose names appear on the plaque are: 1st Regiment of Dragoons, the 1st and 100th Tank Battalions, 1st Armored Division, Fort Hood, Texas.—2nd Regiment of Dragoons, the 2nd Armored Cavalry Regiment, Fort George G. Meade, Maryland.—Regiment of Mounted Rifles, the 3rd Armored Cavalry Regiment, Germany.—1st Cavalry Regiment, the 4th Armored Group, Germany.—2nd Cavalry Regiment, the 5th Cavalry Regiment, 1st Cavalry Division, Japan.—3rd Cavalry Regiment, the 6th Armored Cavalry Regiment, Germany.

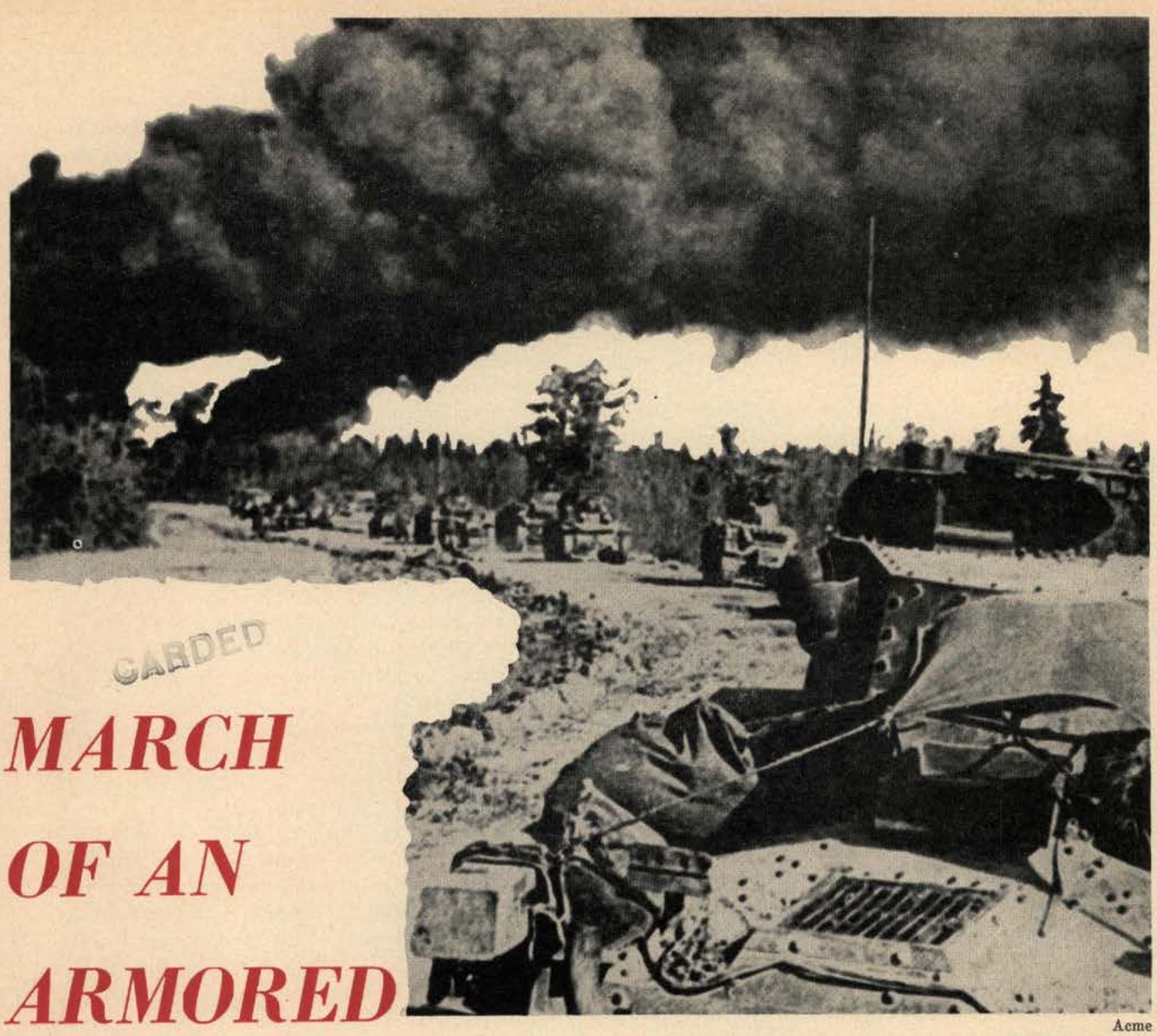
Over the three quarters of a century of my close association with the Mobile Arm, I have seen our horse cavalry armed with a single shot carbine, revolver and saber, engaging primarily in Indian campaigns, grow to a state where, between the two World Wars, it was our arm of mobility with heavier firepower than a like number of infantry. Armor then was introduced into horse cavalry and the formation of the 1st Cavalry Brigade (Mechanized), actually armored, in the early 1930s. This Brigade formed the nucleus of the great armored force of World War II.

Today in the three components of the Army we have 10 Armored Divisions, approximately 13 Armored Cavalry Regiments, 12 Armored Groups and 130 separate Tank Battalions.

At Desert Rock, this past May, Armor showed its prominence on the atomic battlefield. In days past, horse cavalry was the mobile arm of opportunity, exploitation and decision. Armor is so today—thus truly the continuation of horse cavalry. Armor has shown all the characteristics of the old arm by its gallant and outstanding achievements in World War II. We may be sure it will carry on in wars to come. Some of its future leaders are before me today. I wish success to them and their chosen arm from an old horse cavalryman, but also one who did much to advance Armor in its early days, and was an enthusiastic commander of our 1st Cavalry Brigade (Mechanized).

For the United States Armor Association and also the descendant units I thank Colonel James H. Polk, Armor, and Major General J. E. Moore, former Commandant, Army War College, for their inception of this plaque. Also, I wish to thank Major General Eddleman, the recent Commandant, Brigadier General T. W. Dunn, the Deputy commandant and our host here today, the Color Guard of the 2nd Armored Cavalry Regiment, and all others who have arranged this ceremony, as well as those who have honored us by their attendance.

In the name of the United States Armor Association, and descendant units, I hereby dedicate this plaque.



Acme

CARDED

MARCH OF AN ARMORED DIVISION DURING THE MUDDY SEASON

THE following study will describe merely the peculiarities associated with the movement of an armored division during the muddy season. Tactical details, combat operations, and technical questions relative to engineer operations for the construction and maintenance of roads are not considered. Measures of this type played but an insignificant role. The absence of all suitable road materials in these regions made it impossible for the troops to improve the road conditions to any material extent. We shall further omit reference to the influence of railway transportation on the march movement. Especial emphasis is given, however, to the description of march precedures, vehicle operation, and the lessons drawn from them.

The examples given are typical of marches over the entire black-earth region, particularly that of White Russia, the Ukraine, and the regions between the Don and the Caspian Sea east of the Ukraine during the so-called muddy season. Similar conditions prevailed in the central and northern Soviet regions where the soft loess loam is found.

January 1944

The Sixth Army had the mission of maintaining possession of the ore deposits important to the German war industry in the Nikopol region of the lower course of the Dnepr. The Army front was divided into two parts by the Dnepr. East of the river, two army corps—about 10 divisions—held a bridgehead about 12.5 miles deep and 60 miles wide. This front ran roughly in a southwest-northeast direction and was supported on both sides by the trackless Dnepr plain. Adjacent to this on the north the Army held a position which extended in a gentle curve from east to west into the Krivoy Rog area. Here the distance from the main line of resistance was only about 19 miles. Strong Soviet attacks had been directed against both the bridgehead and the northern front. However, they had all been successfully repulsed.

Beginning where the line held by the Sixth Army ended, the Eighth Army's main line of resistance extended from the area north of Krivoy Rog to the northwest. At Kirovograd this front curved northward and reached the Dnepr between Cherkassy and Kiev where it joined the front on the left held by the First Armored Army.

In the middle of January a regrouping of Soviet attack forces was observed in the Sixth Army area. The Third Ukrainian Front was reinforced opposite the northern front of the Army. It was to be expected that the adversary would make a drive toward the south, along the Buzuluk sector, with the intention of reaching the Dnepr bend along the Army axis, and of cutting off the corps which were located in the bend east of there. The Army therefore, moved its most efficient reserve, the 24th Armored Division, out of the bridgehead and into the Mariupol-Ivanovka area 9.3 miles north of Sholokhovo where it was stationed as an Army attack reserve behind the XXX Army Corps.

At the same time the Soviet Ukrainian Front in cooperation with the First Ukrainian Front had succeeded in cutting off the salient on the left wing of the Eighth Army, and in encircling 10 divisions in a pocket west of Cherkassy. It became necessary to pull the Army's main line of resistance back south of Shpola-Sveningorodka.

Mission and Situation

On 27 January 1944 the 24th Armored Division received the mission to march to Novo Ukrainka by way of Sholokhovo, Krivoy Rog, Kasanka, and Bobrinets and to hold itself in readiness there for action to the north on the left wing of the Eighth Army. It was planned to re-establish contact with the isolated corps by means of combat.

The Division had been in action on the Eastern Front only 3 months following its organization. Its assignment of combat vehicles was 85 percent normal. Its armored vehicles had covered about 1,850 miles without a general overhauling.

The Division had approximately 30 different types of vehicles. The spare parts of these vehicles were not mutually interchangeable. The various types were also mixed within the units so that one squadron might have one *Maultier,* one 4-wheel drive, and one or more 2-wheel drive trucks in its train. The greater part of the supply units were equipped, however, with ordinary commercial trucks with 2-wheel drive.

The repair shop units were well equipped, yet the maintenance service did not possess enough towing equipment and the tractive power of what they had was calculated for loads on wheels.

This article was translated and digested by the *Military Review* from an article by Dr. F. M. von Senger und Etterlin and was published in a recent issue of that magazine. It is reprinted here by the kind permission of its Editor. Photographs are supplied by *ARMOR.*

This equipment was characteristic of the majority of the armored divisions located on the Eastern Front. The Division had captured a few American types of vehicles of lend-lease origin which also participated in the march.

The Division had already had experience on the Eastern Front and had gone through muddy periods several times before. It possessed a very good staff of drivers and technicians in both combat and supply units and its great defense successes of the previous 3 months had heightened morale. Both the command and troops were still convinced of the superiority of their own weapons.

The Division's prescribed march route led through that traditional black-earth region of the Dnepr plain. The black earth is a blackish, crumbly type of earth of great fertility. It forms a layer about 2 yards deep over the thick, lighter colored loess below it from whose weathering, together with an admixture of vegetable matter, it has been formed.

Soil Structure

The loess regions with their superimposed layer of black earth abound in enormous ravines which have been produced by water erosion. The majority of these have gently sloping edges, but in their centers have steep-banked channels which in some cases attain depths of as much as 125 feet. They alter their form with every summer downpour, widening especially toward their upper ends and pushing their lateral branches farther and farther into the surrounding plain. They constitute very considerable and dangerous obstacles which are difficult to overcome because they are usually not correctly indicated on the map, are almost indistinguishable across the flat expanse of the plain, and for the greater part are several miles long forcing vehicles to make wide detours.

In rainy weather and in periods of thawing temperatures the black soil softens in such a way as to form a deep stiff mud which is bottomless. In its frozen condition it is as hard as concrete. The properties of this mud are most troublesome during periods of continuous rainfall with freezing temperatures. It is then transformed into a tough mixture which sticks to everything and is hard to remove.

Because of the great extension of the loess deposits, there is an absence of building stone in the Ukraine. Also there are no woods or brush growth in any part of the black-earth region that could provide material for road construction. The houses are all built of straw and earth.

Road Conditions

Hard-surface roads constituted 7 percent of the total in the Ukraine. In the Dnepr plain region this percentage was considerably lower; the surfaced roads existing mainly in the industrial sections of the Donets region. Only main roads had a foundation filling with gravel surface. All other roads were dirt. These dirt roads which had been plowed, graded, and rolled were about 25 feet wide and in some cases had ditches along their sides.

All the roads were passable in dry weather. They develop a very heavy and fine dust. When rain falls they quickly become impassable—but dry out just as quickly when the rain ceases. During the muddy season these dirt roads no longer merit the name of roads. They become bottomless for a long period.

The prescribed march route involved the use of one of these dirt roads as far as Ustinovka. This stretch of road had been subjected to heavy traffic. It had already been so cut up that the exact trace it followed could not be determined. In some places it had been widened to several hundred yards. It led from Sholokhovo to Krivoy Rog, crossing several moist stream beds and ravines. Between Krivoy Rog and Kasanka it crossed several ravines of great depth. At the bottom of both the stream beds and ravines there were broad channels which were poorly bridged by emergency means. Many of these bridges were partially wrecked and some had even been pressed completely into the mud. From Ustinovka to Novo Arkhangelsk there was a main roadway, part of it having a firm filling. Where the filling was inadequate or lacking, however, the gravel surface of this road had been cut up and pressed down into the mud. In the ravines, because of the erosion effects, the filling was usually gone so that on this stretch of road there existed just as dangerous obstacles as over the dirt roads.

The stretch from Novo Arkhangelsk northward through Yampol was indicated on the map as a main roadway, but in reality it was a dirt road of especially poor construction.

Weather

January is the month of greatest precipitation in the Ukraine. There was an almost daily precipitation in the form of wet snow or rain. Only during the night did the temperature drop below the freezing point which caused the roads to freeze over for awhile. During the day heavy overcast skies alternated with warm sunshine.

European

The mud of the Russian roads stuck to everything and was hard to remove.

This weather had the most unfavorable effect on the roads. When these were heavily traveled the freezing temperature had an even worse effect than the moisture, for in this case the deep ruts made the evening before froze solid, leaving the roads in such a condition that until they thawed out by noon of the following day it was impossible to travel over them—even for full-track vehicles. Relief was sought by blocking off the untraveled portions of the stretches of dirt roadway during the thaw period of the day so as to keep them smooth and passable when frozen. This was hard to manage, however, and impossible at narrow passages.

As a result of heavy traffic over the roads, the rain which fell during the day was deeply intermixed with the black earth and could not run off. Hence the stretches of roadway remained muddy much longer than the adjacent level terrain. For this reason new side roads were continually being started.

The March

The Division began its march on 28 January 1944 from its cantonment area north of Sholokhovo under the road and weather conditions described. For tactical reasons it was divided into six march groups.

The most capable of the vehicles of the first march group point reached Krivoy Rog in 15 hours, a distance of 47 miles. Because of the worsening of the roads the following march group attained a daily total of only 6.2 miles. Even full-track vehicles achieved an average speed of only 1.25 miles an hour. The majority of the vehicles remained stuck in the bottoms of the ravines and were unable to get out under their own power. The crossings were completely blocked by the succeeding march groups. The artillery on its way to be loaded for transportation received the order to load only the guns and to dispatch the tractors to the numerous ravines along the march route to pull out the stuck vehicles. When on level ground again, convoy trains were formed; that is, several vehicles were coupled together behind a vehicle which was more capable of operating in the mud.

During the night the vehicles froze fast in the bottomless mud. They had to be thawed out or dug out. Some of them had to be blown out by the use of explosives in order to take advantage of the frozen condition of the soil during the morning hours. As a rule, however, the freezing had not gone so deep that heavy vehicles could not immediately break loose. From the very start a systematic march order was impossible.

On the evening of 29 January the point reached Ustinovka; the main body Krivoy Rog. On 30 January the main road from Rovno aided the advance. By evening the point reached the assembly area about 19 miles north of Novo Ukrainka. The second march group with its leading elements was at Bobrinets, and the third at Ustinovka. The remaining march groups were completely intermixed. The ravines around Sholokhovo and Krivoy Rog were under heavy attacks from the air which in view of the massed condition of the vehicles caused heavy losses.

On 31 January the point of the second march group also reached the assembly area. Seventy percent of the vehicles of both groups remained behind strung out over the entire march route. The road conditions had become so bad that even full-track vehicles were stuck fast. Only the heaviest tractors were able to move. These pulled the vehicles one at a time to assembly places in the larger inhabited localities.

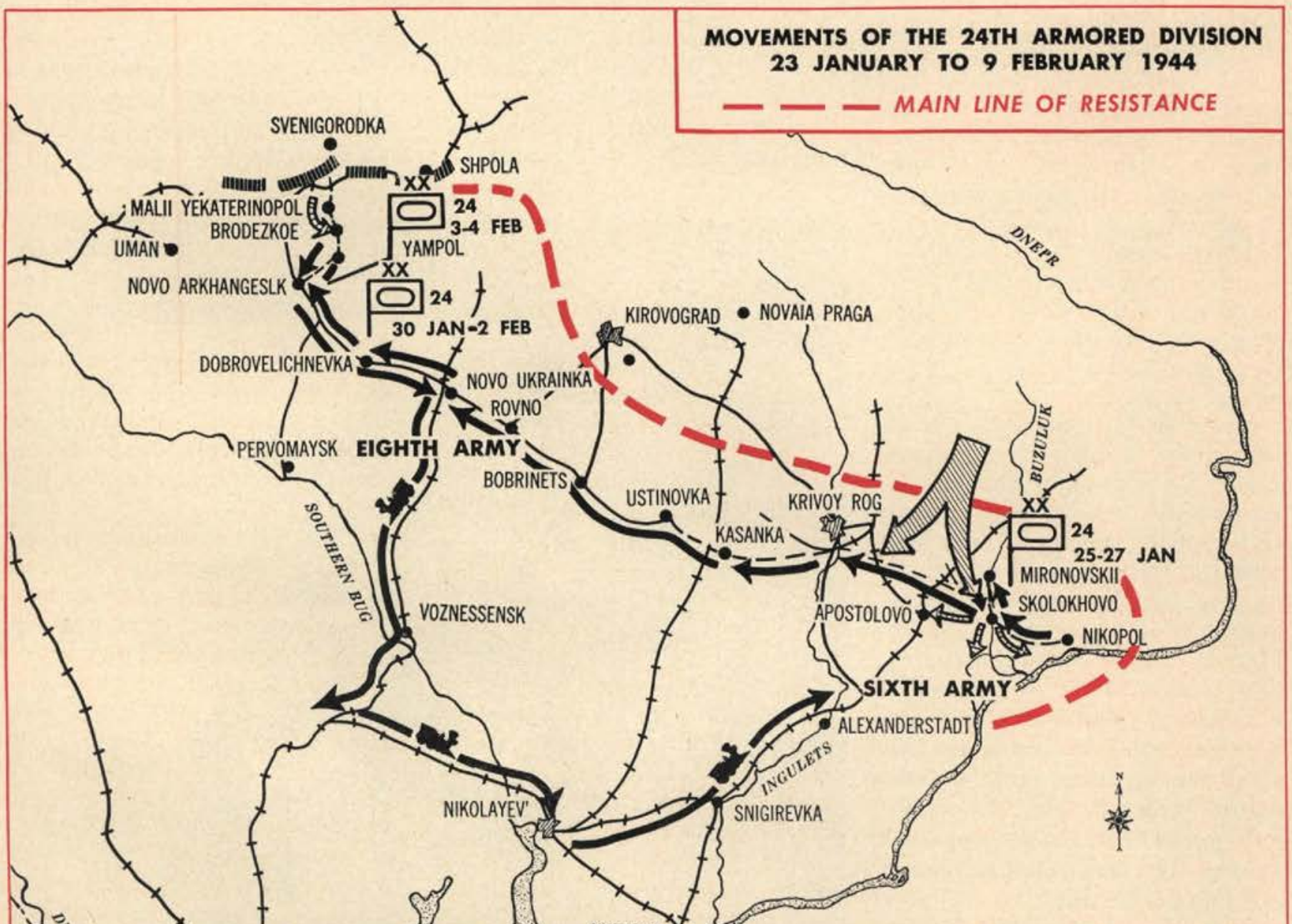
On 1 and 2 February 1944 the majority of the vehicles which were still able to move arrived at the assembly area one at a time. The armored personnel carrier regiment reassembled about 70 percent of its half-track vehicles. The divisional supply forces which were still in the Nikopol area could no longer be moved by overland march. Railway transportation could not be provided for them. Hence the Division headed for its engagement without supply forces.

On the evening of 2 February the Division received the order to prepare for the planned attack in the area north of Yampol. The night march again resulted in extremely heavy losses. Of the 192 vehicles of the armored personnel carrier regiment, 50 had to be abandoned on the stretch between Novo Arkhangelsk and Yampol. Even minor damage to the heavily loaded vehicles could not be repaired since the maintenance forces were far behind. In order to lighten the vehicles, their occupants went on foot. Groups of 20 to 30 men were formed who now and then pushed or pulled a vehicle. One fueling lasted a tank but a short distance.

On 3 February the concentration of the forces was continued in the area north of Yampol. Until noontime, however, only about a dozen tanks—out of about 50 which had begun the march—one battery of one complete regiment, and scattered infantry forces from the two armored infantry regiments and the engineer battalion which had managed to get there with or without vehicles were in condition for action.

In the journal of the Division we read:

> The intention of the Division to push back the enemy—who thus far has occupied Malii Yekaterinopol with obviously weak forces—and again to seize possession of the railway line by means of a tank attack northward today has had to be abandoned since we have not been able to bring up the tanks, the roads being impassable even for them.



MOVEMENTS OF THE 24TH ARMORED DIVISION
23 JANUARY TO 9 FEBRUARY 1944

MAIN LINE OF RESISTANCE
SVENIGORODKA
SHPOLA
MALII YEKATERINOPOL
BRODEZKOE
UMAN
XX
24
3-4 FEB
YAMPOL
NOVO ARKHANGESLK
XX
24
30 JAN-2 FEB
KIROVOGRAD
NOVAIA PRAGA
DNEPR
DOBROVELICHNEVKA
NOVO UKRAINKA
ROVNO
BUZULUK
PERVOMAYSK
EIGHTH ARMY
BOBRINETS
USTINOVKA
KRIVOY ROG
XX
24
25-27 JAN
KASANKA
MIRONOVSKII
SKOLOKHOVO
SOUTHERN BUG
VOZNESSENSK
APOSTOLOVO
NIKOPOL
SIXTH ARMY
ALEXANDERSTADT
INGULETS
NIKOLAYEV
SNIGIREVKA
N
KHERSON
DNESTR
ODESSA
ROMANIA
0
25
50
75
MILES

On 4 February the advance security forces knocked out three Soviet reconnaissance tanks. That was the sole combat action of the Division in the area of the Eighth Army, at the objective point of its 8-day march, for on the evening of 4 February the Division received the order to return immediately to the area it had pulled out of a week previously.

Immediate Results

The cause for this new transfer of the Division was a change in the situation between Nikopol and Krivoy Rog. The anticipated enemy attack took place on 1 February. The IV and XXIX Guard Rifle Corps and the IV Motorized and Mechanized Corps of the Soviet Eighth Guard Army had broken through on both sides of the Buzuluk, had crossed the march route of the Division at Sholokhovo on 4 February, and taken Apostolovo. West of there the IV and XXX Guard Rifle Corps of the Forty-sixth Army had pushed southwestward in order to seize Krivoy Rog from the south.

In order to prevent the enemy from pushing farther southward, reaching the Dnepr bend, and thereby encircling the Sixth Army, the Division was now to move to the area south of Apostolovo. It marched back to Novo Ukrainka on 5 and 6 February for entrainment. On this march about 50 percent of the vehicles remaining were lost. Only about 15 percent of them were loaded before the beginning of the march.

One immediate consequence of the impossibility of moving the final portions of the Division by a march overland was the loss of the greater part of its supply troops who had been caught in the enemy penetration. In this way the Division lost 1,958 vehicles, that is, 55 percent of its complement. The majority of the engineer vehicles, those of the signal battalion and those of the administrative forces, were lost. In addition half of all the workshop units and the supply forces, 13 guns, 13 antiaircraft guns, as well as numerous other weapons were lost, being abandoned along the march route.

Counteracting Measures

On 8 February a check showed that a total of 335 vehicles, although still capable of operation, were stuck in the mud between Novo Ukrainka and Krivoy Rog; 159 damaged vehicles were undergoing repairs; and 1,659 officers, noncommissioned officers, and men were left behind on the road because they had no means of transportation or the ability to make the march on foot. There was also an additional 15 percent of the vehicles which, although they had not fallen into the hands of the enemy, still would not be available to the Division in the foreseeable future.

Thus without these the combat value of the Division had been reduced by approximately two-thirds.

In order to counteract the unfavorable consequences of the march the Division first established salvage stations in Krivoy Rog and Novo Ukrainka. Little by little the vehicles that were still stuck fast in the mud were towed there. They were placed under the command of officers from the various units. For example, the light armored personnel carrier battalion left a squadron in Novo Ukrainka. With it were about 20 armored personnel carriers belonging to the battalion that could be put into running order again with the means at the disposal of the repair detachment. About 10 armored personnel carriers were so badly damaged that they could be repaired only by the rear echelons. Ten additional armored personnel carriers were towed in gradually.

The Division established a salvage area in the rear army area north of Odessa. It was under the command of a staff officer. All vehicles, regardless of whether they were in operating condition or in need of repair, were brought here from the salvage stations by rail. At that time this area, which was about 185 miles behind the front, seemed far enough away to ensure sufficient time for the repair of the vehicles.

Likewise during the succeeding weeks all of the Division's vehicles not directly required for combat duty were dispatched overland under their own power to this area. This plan was only partially successful, however, for during February the entire front had to be drawn back with ever-increasing speed and the muddy season continued unabated.

The Division made great efforts to put horse-drawn vehicles into operation for supply purposes. This proved inadequate, however, for supplying

European

For supply purposes great efforts were made to use horse-drawn vehicles.

fuel to the tanks which were still in action. During the withdrawal operations of succeeding weeks, almost all the vehicles that were still with the Division but which were idle either because of minor damage or because they could not be pulled out of the mud had to be destroyed. In March the Division with a fighting strength of about 4,000 men made the return march from Ingulets to Romania without a single vehicle.

The vehicles were then brought from the Odessa salvage area to Romania, and the Division again with their help acquired a measure of mobility. Without these foresighted measures which, generally speaking, were not ordered and only silently consented to by the higher commands, the Division would not have been able to save those vehicles it still had after the fateful march.

Tactical Lessons

This example shows what serious consequences a false estimate of the situation, insufficient knowledge of what is technically possible, and disregard of the factors of terrain and weather by the responsible higher command can have.

The employment of armored divisions with the equipment available at that time was something which one could not successfully guarantee. The minor tactical successes that could have been won and were won by their use bore no justifiable relation to the unavoidable sacrifice of matériel. The depreciation of matériel that was not designed for such use constituted a waste of strength which was lacking later in a decisive place. We shall not, however, speak further here concerning the decisive defects of an inflexible system of warfare—which was the real cause of this waste. The measures taken by the Division are only an example of the benefit to be derived from a timely withdrawal from a dangerous zone. The combat report of the Division condenses the experiences of this period into the sentence: "Mud is the greatest enemy of the armored division."

Except for these general considerations, however, the shifting of the Division, even in this special case, was by no means in harmony with the requirements of the situation. In the Sixth Army's area any withdrawal of forces was extremely serious. The Army combat report noted with regard to this point:

> The combat capacity of the Sixth Army was affected in a definitely decisive manner when on 28 January, 2 days before the beginning of the Soviet breakthrough attack, the 24th Armored Division was called away and sent off on a 150-mile march because of a change in the situation on the right wing of the First Armored Army. As a result the strongest link in the chain of the Army reserve was removed without its being possible to replace it in time with another of anywhere near equal strength. In addition to this the road conditions were already such that movements could be carried out only at speeds of about 5.5 miles an hour, and with heavy losses of equipment. In the case of the 24th Armored Division there was no guarantee that it would arrive at its destination in time with all its elements.

Summarizing, we read further:

> Even after the proposal (to pull the front back) had been rejected and it was recognized that the enemy was shifting his main effort to the northern front, the Army's operational capabilities, fundamentally, still promised success in the defense battle. The 24th Armored Division at Ivanovka and the armored reserve group at Marevka lay like a protecting wall immediately behind the sector against which the Soviet attack was directed. When the Soviet IV Motorized and Mechanized Guard Corps broke through on 1 February, it would have been squarely in front of the guns of the 24th Armored Division without the latter's having had to move a foot in the deep mud. As a result of the forced removal of the 24th Armored Division and of two other divisional units 2 days before the beginning of the attack, the backbone of the Army's northern front was broken at the decisive moment. . . .

In the Eighth Army's area, however, the action of the Division after its march through the mud could have been of no decisive influence. Supplies had been inadequate for a long time and it would have been absolutely impossible to move the Division's supply centers in time by an overland march. The demands of such a march would have been so far beyond the capacity of the supply centers' equipment, that it would have had to drop out in a short time. The tanks had already passed the critical point of motor wear. In the theater of action at that time the striking power of the Division could not have been exploited, since under the prevailing terrain conditions mobile operation was impossible. The Division would only have been able to develop the striking power of a weak infantry division. It would not have been different even if all the elements of the Division had been transferred to the Novo Ukrainka area by rail.

Thus as the result of a wrong decision, a division which had not lost over 3 percent of its mobility in 3 months of the hardest fighting had been reduced to a third of its value without having won the least tactical success by this sacrifice.

The following lessons may be drawn from these experiences:

1. Motorized and mechanized formations whose vehicles are not especially constructed for operation in mud are to be regarded as practically immobile during the muddy season. They should be drawn far enough back to be beyond the reach of possible enemy attacks before bad weather sets in.

2. If, exceptionally, such formations have to be moved in mud, measures must be taken for ensuring continuity in the march movement. Account must further be taken of the fact that there will be many vehicles lost during the march, that the marching formation will be badly strung out, and that one will not be regularly supplied by one's supply service.

3. The commander of the march formation will exercise the function of a traffic control officer for the entire duration of the march. His combat post, as far as possible, is to be situated midway along the march route. At narrow passages, bridges, or at other troublesome points he will station sector traffic control officers.

4. These sector traffic control officers are to be assigned towing detachments with vehicles especially capable of operating in mud, repair units,

engineers, labor forces, military police, security forces, and signal communication apparatus. These forces for ensuring success on the march are to reach the various sectors before the main body of the formations that are to be moved.

5. The sector traffic control officers will be responsible for ensuring the quickest possible passage of the march groups through their sector. They will tow stalled vehicles especially in the vicinity of narrow passages and obstacles of various types. Damaged vehicles will either be repaired on the spot by the repair service of the sector traffic control officer or be towed away to salvage points where they will be taken over by the repair services of the various march groups.

6. The sector traffic control officers will maintain constant contact with the main traffic control officer. The march groups are under orders of these control officers while passing through their sectors.

7. The march forces will be divided into as many march groups as possible. Vehicles capable of operation in mud are to be distributed equally among the groups except for those assigned to the sector traffic control officers. All trains are to be placed directly with their units. Measures are to be taken to make frequent refueling possible.

8. The march is to be executed after the pattern of the block system with central direction. In order to prevent traffic jams at narrow passages the march groups will be so moved from sector to sector that succeeding march groups will not arrive at narrow passages before all vehicles capable of operation of the preceding group have passed them.

9. The sector traffic control officers will not be removed until all vehicles capable of operation have passed through their sector. March formations cannot be regarded as ready for action at the march objective until all their supply services and the many valuable forces employed for their security on the march have reached the new area.

Technical Lessons

Lack of ability on the part of their vehicles to operate under such terrain conditions was the principal reason for the heavy losses to which motorized and mechanized formations were exposed in the black-earth region during the muddy season. However, because designs capable of satisfactory operation under such conditions are entirely possible, we shall for the sake of completeness take a glance at the experiences of that time with the unsatisfactory German equipment. Numerous formations of NATO are probably equipped with matériel which does not meet the requirements for operations in mud any better than the German equipment.

Wheeled Vehicles.—The light *Volkswagen* personnel carrier because of its light weight could be moved by the personnel it was transporting in case it stuck in the mud. Its power was inadequate, however, and its chassis unsuitable for operation in mud. The amphibious *Volkswagen* was relatively satisfactory. Its 4-wheel drive and, above all, its greater clearance and smooth underside gave it a relatively large degree of mobility. A few captured United States jeeps were tested. In spite of their greater power and 4-wheel drive, they proved to be inferior to the amphibious *Volkswagen* since their clearance was much too low. Despite the fact that their wheels continued to turn, they stuck fast in the mud and because of their weight could not be moved by their crews.

The 4-wheel drive heavy personnel carriers, *Kfz. 70s,* did very well. Their main difficulties lay in too light construction of certain parts such as clutch and differential.

Trucks without 4-wheel drive were immovable. The unfortunate concentration of weight on the rear axle of these commercial type vehicles, and their dual wheels were especially troublesome. The stiff mud stuck on these wheels in a thick layer. They turned only for a short time until the mud built up on them to such a thickness as to rub on the frame of the chassis, thereby stopping them.

The 4-wheel drive *Opel* personnel carriers were more mobile but suffered from the same defects as the commercial types. A few captured United States personnel carriers were more mobile because of their robust construction and greater power. The dual wheels of their rear axle were of no advantage. The large single wheels these types a short time ago possessed should meet all requirements.

The 8-wheel armored reconnaissance car was most mobile of all in the mud. It was even able to develop considerable speed. Larger wheels somewhat clearer of other parts would have increased its ability still more.

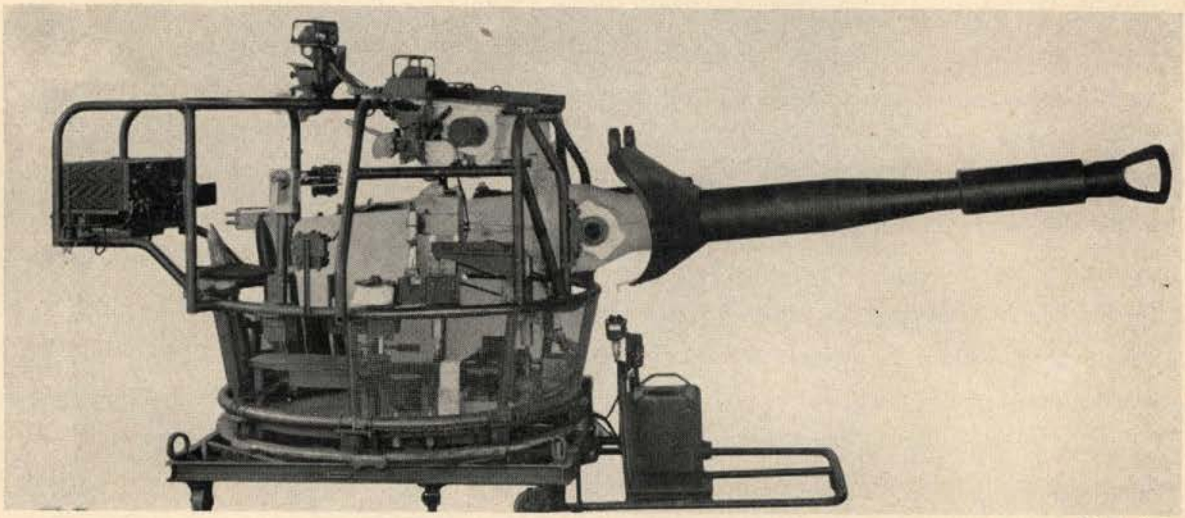
Half-Track Vehicles.—The chassis of all the tractors proved less suitable for operation in mud than those of some of the wheeled vehicles. The boxed in type of bogie wheels of the suspension employed is absolutely unusable in mud. The undriven bogie wheels were immediately stopped by the mud. The vehicles ran for long distances with clogged bogie wheels around which the track, greased with mud, merely slid. This, however, cut the rubber facing of the bogie wheels to pieces. The forward end of the vehicle chassis which carried the front wheels was entirely too weak. Response to steering in thin mud was insufficient. Only the heavy 18-ton tractors with their large bogie wheels which were about 3 feet in diameter were entirely practical.

Again because of its greater power and robust construction, the American half-track vehicle *M2* was more satisfactory than the German types. Its small bogie wheels, however, were impractical in mud and its rubber tracks were often stretched by mud accumulations to the point where they broke.

The *Maultier* truck type vehicles were essentially capable of operation in mud. Because they were actually of emergency construction, employing obsolete light tank chassis, these vehicles suffered from numerous technical shortcomings. The heavy *Maultier* was especially practical. It was the sole vehicle that could definitely be said to be suited for operation in mud.

Full-Track Vehicles.—The German tank types all suffered from too small a power weight ratio. The bogie wheels were too small and the tracks too narrow. Because of too high a specific ground pressure, the tracks frequently sank into the mud although they continued to turn. Their high speed motors wore rapidly. Only the Czechoslovak T38 chassis proved satisfactory to a sufficient degree. Its four large bogie wheels cut cleanly through any mud.

Synthetic Tank Turrets



U. S. Army

The goal of every unit in the Army, National Guard, and Reserves is to attain the most efficient state of combat readiness with the most economical means obtainable.

Found too costly and too large and heavy for most armory floors, standard M4A3 and M47 tank instruction equipment is being replaced by newly developed, low-cost, lightweight synthetic tank turrets in the armory training of National Guard tank units.

The new trainers (the M47 turret model is shown above) weigh about 3,500 lbs., are easily portable, and are produced at approximately 10% of the cost of previous trainers, yet incorporate more detail for training in all phases of tank gunnery, communications and turret operation.

The new tank trainers are the brainchild of the Army Participation Group of the Navy's Special Devices Center, the National Guard Bureau, and New Jersey National Guard's 50th Armored Division. Brigadier General Edward O. Wolf, the 50th Armored Division Commander, played an important part in the development of the urgently needed training device.

Skeletonized for maximum visibility, and light enough to transport in a 2½-ton truck, both trainers simulate in every detail operations of standard tank turrets. For economy, equipment easily removed from the tank (such as sighting instruments, radios, coaxial machine guns) is supplied by the using unit.

All controls normally in the operational turret are duplicated in the trainers as nearly as possible as to location, appearance and feel. The model has the normal electric firing, lighting, and radio intercom systems. Powered by a hydraulic motor, the turret may be traversed full circle in its fabricated open framework base at speeds up to six rpm by gunner or tank commander, simulating the feel of an actual turret. It may also be traversed manually. It is mounted on swivel casters, and has retractable floor jacks.

The fabricated 90mm gun's breech can be operated, and the piece can be disassembled. Dummy ammo is used.

Bracket seats for all members of the crew are integrated into the framework base of the trainer, which is built as close to floor level as possible to permit full observation by trainees from the outside.

CHANGE IN PUBLICATION DATES

When you receive this issue of ARMOR, it is hoped that you will notice the earlier delivery date. In the past, issues have been put in the mail during the middle of the publication date. For example, the September-October issue was mailed on the 25th of September. Hence many members stationed overseas were not receiving their copies until the end of October. Thus, it is natural for them to assume they were receiving an old issue. This issue will be put in the mail by the 10th of November and we are striving to publish the forthcoming January-February issue by Christmas. From then on we will maintain this new schedule of publication by mailing the issues out on the 25th of the preceding month. This also means that copy for publication must be in the hands of the editor no later than the 25th of January for the March-April issue, the 25th of March for the May-June issue, and so forth. It would have been a lot easier to change the date on the cover but we felt that this would not be fair to our members. Also, renewal notices will be sent out several weeks earlier than last year but you will still get your six issues a year. We are simply endeavoring to get on a more realistic publication schedule so that our far-away readers will not think they are reading "Old Hat."

MEETING OF THE ASSOCIATION OF THE U. S. ARMY

Last month we were privileged to attend the initial meeting of the Association of the U. S. Army which was held at Fort Benning, Georgia. It was indeed an inspiring meeting and we appreciated the opportunity to have been present. Returning to a post after 14 years absence is a treat in itself.

The gathering of old friends to exchange pleasantries, swap Army shoptalk, and see the advances made by all branches of the Army was most interesting. The static exhibits by the various technical and administrative services led us to more fully appreciate the branches backing up the combat arms in fulfillment of the Army mission. Speeches by our eminent Secretary of the Army, the Honorable Wilber M. Brucker, our Chief of Staff, General Maxwell D. Taylor, Lieutenant General James M. Gavin and Lieutenant General Walter L. Weible were most inspiring.

A panel composed of key civilians from various walks of life and representing different professions discussed many of our Army's current problems. The panel moderator was Dr. James D. Atkinson, Professor, Department of Government, Georgetown University. Distinguished members of the panel were: Mr. Hanson Baldwin, *New York Times;* Mr. Donald Douglas, Jr., Vice President, Douglas Aircraft Company; Mr. Earle Cocke, former National Commander, American Legion; Dr. Henry Kissinger, Professor of International Relations, Harvard University; Mr. Willard F. Rockwell, Chairman of the Board, Timken-Detroit Axle Company; and Mrs. Esther Van Wagoner Tufty, Tufty News Bureau. Many of the Army's most difficult problems were posed to the panel and we came away feeling that we have a tremendous job to do.

It is hoped that many of those present will see fit to attend the next annual meeting of the U. S. Armor Association to be held next Spring.

GIFT CARDS

Recently we had attractive gift cards printed for use of our members who desire to send either books or gift subscriptions to friends. The cards are worded:

This Gift Book

____

is being sent to you

through the U. S. Armor Association

with the compliments of

____

A Gift Subscription to

ARMOR

is being sent to you

with the compliments of

____

Anyone desiring to use these cards can do so by requesting them with his order. All we will do is fill in the blanks and send the cards with the books on their way. Magazine gift cards will be sent upon receipt of order. They are appropriate for any time of the year. We hope that you will use them up fast and we have to order more! This is an additional service we wish to offer our members.

OCS AWARDS

During this past Spring we instituted the awarding of a set of Armor insignia to the OCS graduates choosing Armor as their basic branch upon receiving their commissions. In addition letters of welcome into the branch are sent to them by your Secretary. Brochures and letters of welcome are also sent from The Armored School. Pictured on the left is Lt. Col. Harry H. Ellis, Chairman of the Armor Committee, The Infantry School, with a group of recent graduates choosing Armor. On the right he is pinning the branch insignia on one of the candidates.

MEMBERSHIP CARDS

Membership cards for all members will be printed shortly. As renewals are received, your membership cards will be issued. They will be of wallet size and will show the expiration date on them. We will continue to send out renewal notices but we feel that the cards will enhance the prestige of membership. Many members have requested this service and we are happy that we can oblige. It is agreed that this a long overdue step and a necessary one.

The Editor

news from THE ARMORED SCHOOL

Elimination of the Heavy-Gun Tank Battalion

The Department of the Army has issued a directive eliminating the "Tank Battalion, 120mm Gun" from the tables of organization and has required those units organized under TO&E 17-35R to be reorganized under TO&E 17-25R "Tank Battalion, 90mm Gun."

Training Circular 17-1, dated 20 September 1955, has been published as an interim publication pending revision of Field Manuals covering the doctrinal changes necessitated by the elimination of the heavy-gun tank battalion. The revised doctrine is as follows:

1. The medium-gun tank battalion must provide the primary antitank protection in both offensive and defensive operations.

2. More emphasis is placed upon maximum utilization of the superior speed, maneuverability and fire control equipment of medium-gun tanks to outmaneuver enemy heavy tanks, close within killing distance of them, and outshoot them, relying on more rapid and accurate firepower.

The non-divisional medium-gun tank battalions will be employed as follows:

1. By attachment of the battalion to either an armored or infantry division to increase the tank strength of the division for a specific mission.

2. By attachment to the corps armored cavalry regiment when the regiment is organized as an armor task force.

3. By attachment to an armor group.

Activation of Special Weapons Division

On 1 September 1955, the Special Weapons Division was activated within the Command and Staff Department in order to integrate instruction on both the technical and the tactical aspects of atomic warfare. Prior to its creation, technical information was taught by the General Subjects Department and tactical employment was taught by the Tactics Division of the Command and Staff Department. In addition to preparing and presenting units of instruction, the new division furnishes general guidance for instruction presented by other instructors and assists in the preparation of new atomic-armor doctrine. The division also serves as a central repository and disseminating agency at The Armored School on matters pertaining to atomic warfare. As its first major task, the new division coordinated the presentation of a two-day Atomic Reorientation Course to senior officers of Fort Knox and other nearby posts in the Second Army Area.

Scientists Visit Fort Knox

Last month The Armored Center was host to sixty of the Army's top civilian scientists who came to see what their ingenuity and American industry had produced for the tankers being trained here. During the two-day conference, which included a tour of The Armored School, they saw armored vehicles and weapons in use on the driving and firing ranges. Their visit was climaxed by a demonstration of the smashing power of a reinforced tank company in the attack, supported by armored artillery and tactical air.

Revised Communication Courses

Two major curricular revisions have been made in the Communication Department. In the first of these, the former 17-week Armor Radio Maintenance Course (17-E-2) has been shortened to 12 weeks and will be offered 12 times a year. The major changes in this course are the reduction of maintenance and theory instruction and the addition of operation, tactical communication and supply instruction.

In the second revision the 13-week Armor Communication Enlisted Course (17-E-1) was changed to a 5-week Armor Communication Supervision Enlisted Course (17-E-1). This is a specialist course consisting of instruction in tactical communication, equipment and procedure, maintenance, signal supply, field communication subjects and a review of maintenance. Students attending this course must be qualified radio mechanics. The course will be presented at approximately three-month intervals.

Use of Extension Courses in ROTC Programs

In addition to the many instructional and administrative duties that the Armor instructors carry on at ROTC installations at our colleges and universities, an ever-present problem is the guidance of ROTC cadets in the matter of selecting a branch. Cadets of the General Military Science program entering the senior academic year are given opportunity to express their branch preferences. A cadet's branch selection is considered and recommended by a board early in his senior academic year and his branch assignment is based upon the recommendations of the board, which considers the needs of the service as well as the individual's desire. In the determination of branch recommendations a great deal of consideration will be given to the cadet's expressed preference of branch. The relatively heavy weighting of the cadet's preference of branch is predicated upon the assumption that the morale and motivation of an officer will be higher if he serves in the branch of his choice. The validity of such a choice is dependent upon the cadet's having adequate information regarding the work that is performed within each branch. Some cadets are inevitably disappointed in that the branch they choose is not the branch to which they are evenutally assigned.

Since the boards must arrive at their decisions on the basis of information placed before them, one method by which cadets may increase the assurance of their being assigned to Armor is to complete extension courses of The Armored School. Advanced Course Cadets are eligible for enrollment in the Armor 20 Series. Upon presentation of their Certificates of Completion to the board considering their branch assignments, the probability of their being recommended for assignment to this branch is greatly enhanced. The Armored School 20 Series consists of 175 credit hours of instruction. If this course is completed during the cadet's junior year at college, it would require only about 4½ hours of study a week. Study of the 20 Series is also excellent preparation for attendance at The Armored School, since this Series parallels the resident basic course.

Armor instructors who are interested in furthering the branch training of selected cadets through Extension Courses may obtain additional information by writing direct to the Nonresident Instruction Department, The Armored School.

Armor Extension Course Honor Roll

The Extension Course Honor Roll will be a regular feature of this page. To be placed on the Honor Roll, a student must complete all of the required subcourses of a series with an overall rating of "Superior." So far this year there have been six students who attained a "Superior" rating. These outstanding students are:

40 SERIES—CWO William P. Ballint, Headquarters and Headquarters Detachment, 3d Ordnance Battalion, Fort Knox, Kentucky.

30 SERIES—1st Lt Robert L. Wick, Headquarters and Service Company, 304th Tank Battalion (Pennsylvania), United States Army Reserve.

20 SERIES—1st Lt William C. Hamilton, Headquarters Company, 50th Armored Division, New Jersey National Guard; 2d Lt James E. Parks, Jr., Headquarters and Service Company, 157th Tank Battalion, Texas National Guard; 1st Lt Raymond C. Perry, 5101 Control Group (Colorado), United States Army Reserve; and 2d Lt Charles R. Way, 49th Reconnaissance Company, 49th Infantry Division, California National Guard.

Key Personnel Changes

Colonel E. A. Kenny has assumed directorship of the Communication Department, and Lt Colonel C. E. Lathey is now Executive Officer.

The Mobile Mind

Last month we inaugurated a page from The Armored School to keep everybody informed on the latest developments from the proverbial "Home of Armor." The article on the mobile mind was submitted with the copy for this issue. While editing we felt that this particular piece was more than merely newsworthy. It deserved special attention and should evoke provocative thought from our readers. Hence we treated it more like an editorial and focused special attention on it by boxing it in. Its definitive meaning is worthy of consideration by all mobile commanders from tank commander to Armored Army commanders.

ARMOR has always stressed the importance of mental mobility. To assist the young armor leader, the Command and Staff Department has defined and explained Mental Mobility as follows: *Mental mobility is that mental state of the commander which permits him to respond aggressively and boldly to any battlefield stimuli with the maximum utilization of mobile forces.* Armor commanders think in miles, not yards. Mobility of mind connotes the ability of the leader to project his thinking far beyond the shallow and narrow area of the immediate battle. Armor commanders are mentally conditioned to see the smaller action and its outcome in proper relationship to the overall objective. They constantly seek an opportunity to employ aggressiveness to the maximum in an effort to overwhelm the enemy and effect the decision. Mobility of mind includes boldness of concept and execution. There is in mobile warfare a definite requirement to take the calculated risk; inherent also is a flexible plan which permits immediate adjustments when things do not go as planned. But a flexible plan is not enough—the commanders charged with its execution must be able to adjust their thinking to frequent and drastic changes without undue excitement, worry, or frustration. Mobility of mind includes foresight combined with rapidity of decision. Armor commanders visualize the probable outcome of the battle and are prepared to instantly execute a better and more decisive plan as the situation develops. Mobility of mind does not necessarily imply speed but does require outdoing the pace of the enemy. Armor commanders work from their hip pockets; mobility of mind is tied to personal mobility. Armor commanders must be efficient at commanding from combat vehicles moving at relatively high speeds. Neither the mind nor the body of the commander must be harnessed to slow, complex staff organization and procedure. The Armor leader carries the essentials of command in his head and his hip pocket. He uses his communications to cement the efforts of his command from wheeled, tracked, or winged transportation which enhance the flexibility and efficiency of the mobile-minded commander.

NEWS NOTES

Camp Polk Now Fort Polk

Camp Polk, Louisiana, was reactivated as a permanent installation on November 1 and redesignated Fort Polk, the Department of the Army announced recently.

Simultaneously, the Army said that Exercise SAGE BRUSH will be held as scheduled in the maneuver area acquired in Louisiana.

The State of Louisiana has entered into an agreement with the Army to insure 15 year maneuver rights to usable areas within a 7,000,000 acre tract.

Substantially all land required for Exercise SAGE BRUSH has been obtained. To insure complete adequacy of the large scale maneuver area for long term use by the Army, however, negotiations are being continued by the State with landowners for the acquisition of additional land sites.

All land is being acquired at no expense to the Government except for those costs that may be involved in restoration and claims payments to property owners for actual damages, if any, done to property during maneuvers.

Camp Polk reverted to standby status in June, 1954, following the end of hostilities in Korea.

The ARTC

On October 15 the Armored Replacement Training Center reorganized for the fourth time in less than eight months since its move from the 3d Armored Division in March.

The addition of Reserve Forces Act (RFA) trainees assigned here for basic combat training and later for Armor, Infantry and specialist training will boost the ARTC personnel figure to an operating capacity of over 12,000 men.

Former staff sections have been redesignated on the general staff level with a concurrent boost in personnel and rank for some of these sections.

The new organization has three regiments totaling 11 training battalions, plus a 12th specialist training battalion and two separate companies; Hq. and Hq. Co. and a receiving and processing company.

The 1st Armored Training Regiment consists of two battalions, each with six tank companies. Thirty tanks and 150 Armor "packet" trainees are assigned each company. This regiment is solely responsible for the training of enlistees and inductees for advanced individual training in Armor under the packet platoon system.

RFA 6-month volunteers destined to become tankers will be trained exclusively by the 2d Armored Training Regiment, which will give instruction in basic combat, advanced individual Armor training and basic Armor unit training. After this half year tour, the RFA men will return to their hometown reserve centers to begin their 7½ year stretch of active reservist duty.

Another command, the 3d Infantry Training Regiment, is designated as the unit to train RFA volunteers in basic combat, advanced individual Infantry and basic Infantry unit training. This regiment is presently at zero strength but will spring to life when the input of reserve trainees warrants a personnel assignment.

The 12th Bn., consisting of the radio, clerical and automotive specialist training schools, will train Regular Army personnel inductees and RFA men in its classes. Over 850 RA's and inductees will be in the schools; the number of RFA's to receive specialist training here has not yet been determined. The 12th Bn. will also include a 50-man band training unit.

Fort Rucker a Permanent Army Post

Designation of Camp Rucker, Alabama, as a permanent installation was announced recently by the Department of the Army.

The installation, located near Dothan, Alabama, was designated simultaneously as Fort Rucker. It is the site of the Army Aviation Center and home station of the 351st Regimental Combat Team.

TOP COMMAND CHANGES

Maj. Gen. Donald W. McGowan
Chief, Army Division
National Guard Bureau

Brig. Gen. Edward O. Wolf
Commanding General
50th Armored Division

Brig. Gen. Raymond W. Curtis
Assistant Commandant
The Armored School

The new designation will not result in any change in the mission or strength of the installation.

ARMY STAFF REORGANIZATION

Lt. Gen. James M. Gavin
DC/S (Research and Development)

Lt. Gen. Clyde D. Eddleman
DC/S (Plans)

Army "Skycav" Unit Designed To Relay Battlefield Information Quickly

An Army unit, employing helicopters, fixed wing aircraft, jeeps and tanks, has been organized for testing a new concept in gaining information on the battlefield, the Department of the Army announced recently.

The company-sized unit, called "Sky-Cav", was organized last August at Fort Bragg, North Carolina. It is being tested during Exercise SAGE BRUSH, joint Army-Air Force maneuver being held at Fort Polk, Louisiana, November 1—December 15.

Using Army airborne television, photographic, radio and radar equipment, the unit is designed to provide Army commanders quickly with accurate information about an enemy. Similar equipment is used in the unit's jeeps and tanks.

One of the objectives of SkyCav during Exercise SAGE BRUSH will be to reduce the time required by the unit's searching elements to gain information and to transmit it to headquarters requiring such information.

Georgia-Florida National Guard Division Converted

The 48th Infantry Division was converted to Armor on the 1st of November bringing the number of National Guard Armored Divisions to six out of a total of 27 National Guard Divisions. Major General Joseph B. Fraser is the Division Commander. The Headquarters for the Division is 632 Mulberry Street, Macon, Georgia. The Assistant Division Commander is Brigadier General Maxwell C. Snyder, who is the senior officer in the Division from the State of Florida. His address is P.O. Box 2056, Jacksonville, Florida.

Attention "Brave Rifles"!

Former members of the 3d Armored Cavalry Regiment have been invited to forward messages to the Regiment for possible use in a yearbook which is now being produced.

Included in the yearbook will be a history, pictures and information on the Gyroscope "Big Switch" which brought the Regiment to Germany this year; pictures of prominent former and honorary members of the famous outfit, and photos showing the men at work.

Former members of the Regiment may write to Public Information Office, 3d Armored Cavalry Regiment, APO 696, New York, N. Y.

The yearbook is expected to be available after next January 15. The publisher is Hanson Enterprises, 622 West 24th St., Norfolk, Virginia. Price of the book will be $5.50.

The 109-year-old "Regiment of Brave Rifles" has a long and distinguished history, having acquired 36 battle streamers and one unit citation while taking part in five major U.S. wars and numerous small ones since 1846.

3d Armored Division to Relieve 4th Infantry Division

The 3d Armored Division at Fort Knox, Kentucky, will move to Frankfurt, Germany, beginning in May, 1956, relieving the 4th Infantry Division. The designation of the 4th Division will be returned to the United States where it will be used to redesignate the 71st Infantry Division after completion of rotation of that unit from Alaska. The 71st Infantry Division, as a designation, will be withdrawn from the active Army.

The 2d Infantry Division will exchange stations with the 71st Infantry Division in Alaska. The first of two 2d Infantry Division Regimental Combat Teams will arrive in Alaska in July 1956. Another RCT will arrive in Alaska a month later. A third RCT will remain at Fort Lewis, Washington.

The 8th Infantry Division, stationed at Fort Carson, Colorado, will move to Göppingen, Germany, switching assignments with the 9th Infantry Division. The home station of the 9th Division will be announced at a later date. The move of the 8th Infantry Division will commence in August 1956 and be made in three increments.

1st Armored Division to Fort Polk

The 1st Armored Division, which has been located at Fort Hood, Texas since its reactivation in February, 1951, will remain at Fort Polk after Exercise SAGE BRUSH, to be held in that area between November 1 and December 15, 1955. Also scheduled for permanent location at Fort Polk are III Corps Headquarters, now at Fort Hood, and necessary logistical and support units. The total number of military personnel expected to be stationed at Fort Polk is approximately 19,000.

Fort Hood remains the home station of the 4th Armored Division.

The permanent change of station will not become effective until those individuals of the 1st Armored Division who have families, automobiles or other valid reasons, have been given an opportunity to return to their former duty station at Fort Hood after completion of the maneuver to arrange their personal affairs.

Contract for M48s Awarded

Approval of a contract for approximately $73,000,000 worth of M48 medium tanks, exclusive of government-furnished property, was announced recently by the Department of the Army.

The contract is being placed with Alco Products, Inc., Schenectady, New York, formerly known as the American Locomotive Company.

These vehicles will be produced in the Schenectady plant of Alco Products, a facility which produced the M47 tank until the end of that program approximately 16 months ago.

Alco Products, whose proposal was low, was awarded this contract as a result of competition with Chrysler Corporation.

General Motors Corporation and Ford did not submit a proposal for this order. Chrysler is currently in production on the M48 tank under a contract awarded about a year ago.

Deliveries under this new contract are scheduled to begin about June 1, 1956.

Important among the suppliers of major components for the M48 tank is the Continental Engine Company of Muskegon, Michigan, which will furnish the specially designed Ordnance-Continental engine used in the M48 medium tank as well as in a number of other combat vehicles.

FROM THESE PAGES

65 Years Ago

A distinction is made between forced reconnoiterings and reconnoitering of observation. The former seek an engagement from the beginning, in order to oblige the enemy to deploy his forces. They are generally executed by stronger detachments of all arms, and are meant to serve as a prelude to a general attack.

The reconnoiterings of observation are executed by officers' patrols and small detachments which have to avoid an encounter with the enemy, as much as possible. They are to observe, but not to fight, and are only to resort to an attack when they cannot perform their task secretly.

For these reconnoiterings, cavalry officers' patrols of from five to six horsemen up to platoon strength are employed, or cavalry detachments not exceeding a few squadrons. To the command of those patrols clever, bold and capable officers are principally appointed, because the most important consequences often depend on the result of their management of them. The leader of an officers' patrol should be the eye and ear of the Commander-in-Chief, as long as the troops are on the march, but in battle and during the fight he must be the supporting organ of the tactician, viz; the Commander-in-Chief. In the former case, the great bodies of troops are led on according to his reports; in the latter, the attack will be made upon the weak point of the enemy which he has ascertained.

By a German Staff Officer

Regulations for German Cavalry

50 Years Ago

The *fin-de-siecle* idea of the rifle is to be of small caliber, and to wound and to disable, but not to kill. Long range, together with this requisite, is sought, and the increased amount of ammunition which can be carried necessarily follows.

On the other hand, the pistol is primarily a weapon of contact. It is to be used now as it was at the time of its adoption, to produce an instantaneous stop. It is, as it were, a weapon of the last resort, one to be used when it is your opponent's life or your own. The pistol should kill. The wounding of an opponent within a few yards of you is not sufficient, for if you leave him able only to move his finger, it may play the last act of your life in curling about the trigger of his rifle or pistol. The province of the pistol has never changed in this respect. There are some advocates of the small caliber long range pistol, which has the same effect as the rifle, but I do not believe that they really think this a soldier's weapon. I feel sure that experimentally they have become interested in long range pistol shooting, and that they are pleased with the idea of attaching a stock and using the same weapon as a rifle.

Captain George Vidmer

The Service Pistol and its Caliber

25 Years Ago

The cavalry should be subjected to as few detached details as possible and its entire strength should be available for employment in large units and for mass action. However great the front covered on the distances to objectives may be, the division or corps should act as a unit.

The power of cavalry to operate independently and at considerable distance from the main mass is its most valuable characteristic. The commander who can employ it aggressively and in sufficient force will gain an advantage that will vindicate its enduring place in campaign and in battle.

* * *

One cannot witness the performance of the troops and of the Cavalry School without a sense of pride in the noble arm which they represent and in the state of preparedness that is found to exist. I would enjoin an earnest adherence to the basic doctrines developed by American campaigns and to the cultivation of the pride, fortitude, and the standards of honor inherited from the men whose names have reflected glory on the arm and whose achievements in it have filled so many of the brightest pages of our Country's history.

General C. P. Summerall
Chief of Staff

Cavalry in Modern Combat

10 Years Ago

The great tactical value of the flame thrower is that it can be used against targets, such as pillboxes, emplacements, foxholes and the like, which cannot easily be attacked with other weapons. The flame penetrates loopholes or other apertures, and makes the interior untenable. Even where the flame cannot penetrate, its extreme heat will raise the temperature to an intolerable degree.

The physical effect of a flame thrower against any fortification is second only to its moral effect on the defenders. It is a terrifying weapon. There is no defense against the flame thrower except to go somewhere else as quickly as possible.

The combination of flame-throwing equipment and the normal infantry support weapons is a natural and extremely formidable one. It consequently is not surprising that the Wasps and Crocodiles were highly successful in all the operations in which they were used. The many concrete defenses on the French coast, the fortifications of the much vaunted "West Wall," and the buildings fanatically defended in Germany itself, all failed to hold out against this, the most frightful weapon of modern field warfare.

Major J. R. W. Murland

Wasp and Crocodile

"How would you do it?"

SITUATION

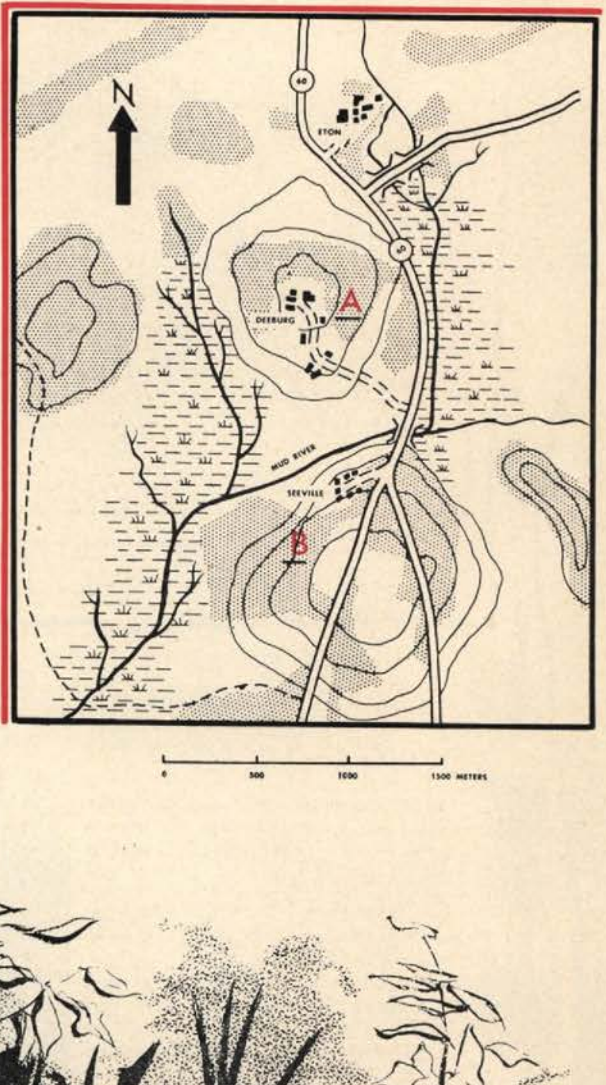
The 301st Armored Division is advancing to the west. The 301st Reconnaissance Battalion has the mission of protecting the north (right) flank. You are commanding Company C, 301st Reconnaissance Battalion.

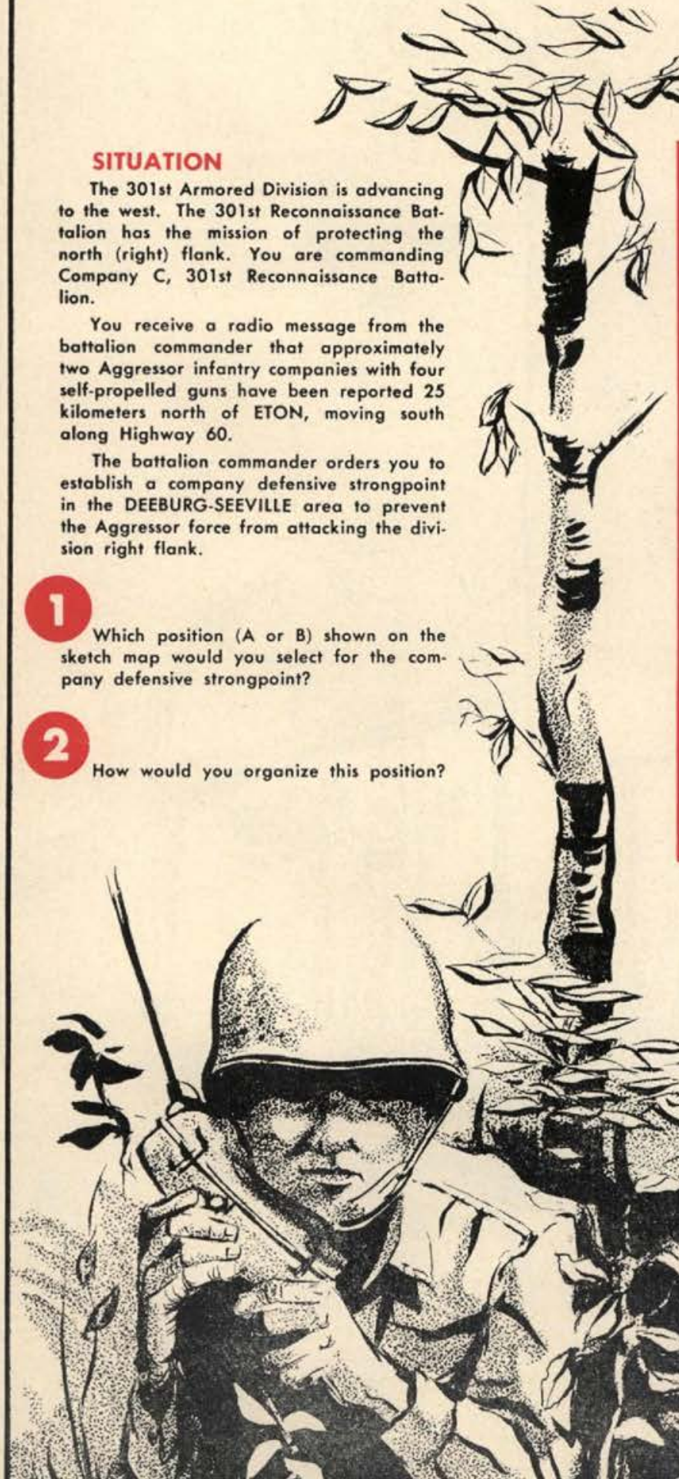
You receive a radio message from the battalion commander that approximately two Aggressor infantry companies with four self-propelled guns have been reported 25 kilometers north of ETON, moving south along Highway 60.

The battalion commander orders you to establish a company defensive strongpoint in the DEEBURG-SEEVILLE area to prevent the Aggressor force from attacking the division right flank.

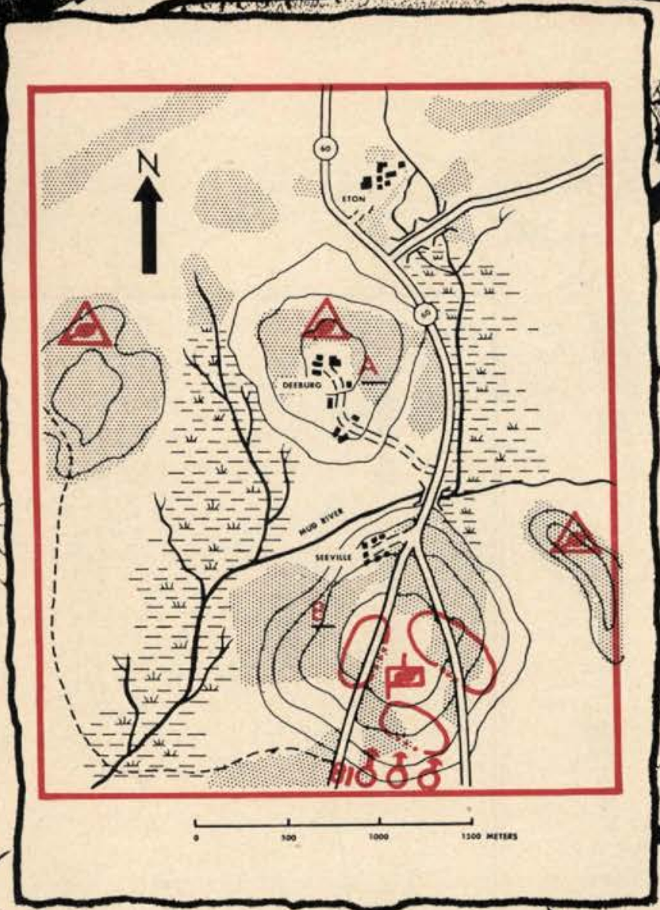
① Which position (A or B) shown on the sketch map would you select for the company defensive strongpoint?

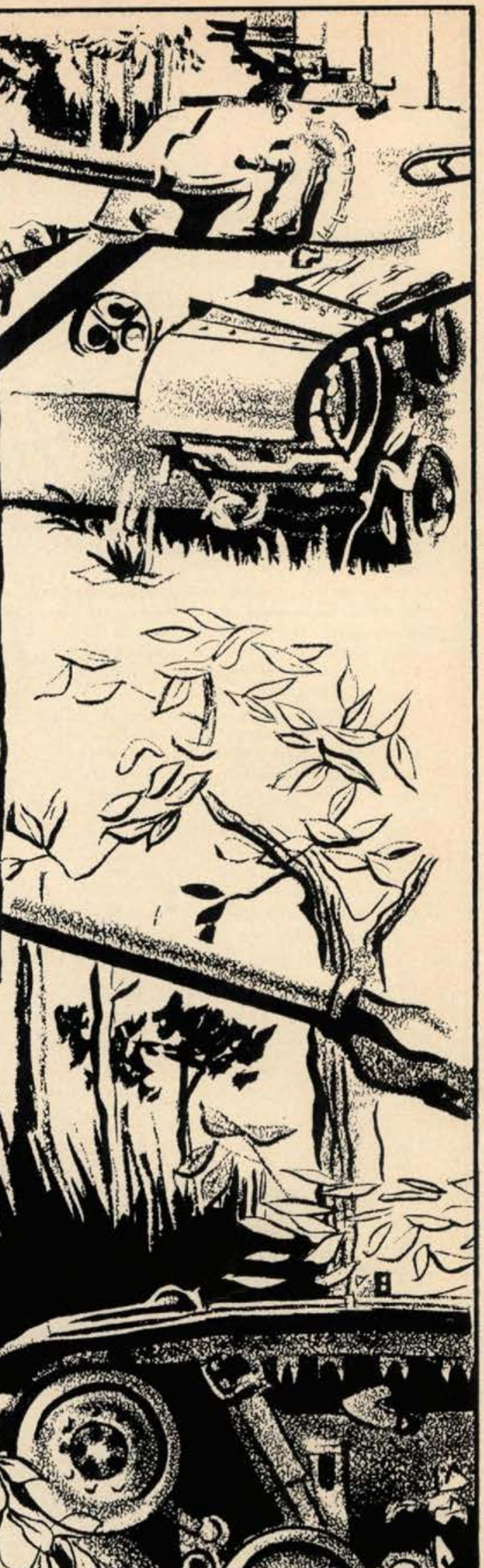
② How would you organize this position?





ILLUSTRATED BY MR. J. H. BAIN





①**SOLUTION** You select position B for the company defensive strongpoint after making a map study and a personal reconnaissance of the terrain.

DISCUSSION. This position utilizes natural obstacles that impede the advance of the enemy and canalize him into the area between two swamps. You are provided with a natural obstacle to your front—MUD RIVER—which will further impede the advance of the enemy and which you can cover with fire.

If you should occupy position A, MUD RIVER would be to your rear. This might prove to be a serious obstacle to you if the enemy should succeed in destroying the bridge.

Position B offers good observation and long-range fields of fire to the front, flanks, and rear. The hill mass and woods offer cover and concealment to your company. There are covered routes into the position from the rear.

②**SOLUTION.** See the solution sketch for a recommended organization of your strongpoint.

Career Management Division

THE FOREIGN AREA SPECIALIST TRAINING PROGRAM

SINCE the founding of our country, the United States has become increasingly more prominent in international affairs. This prominence has led to a greater assumption of leadership in world affairs. A natural outgrowth of this position is increased relationship with the peoples of other nations.

Because of the resulting increased scope of military duties, Army officers are becoming more deeply involved in certain phases of international relations. Particular areas where this is true include oversea assignments, such as Army Attaché, troop duty abroad and service with MAAG's and Military Missions. There has developed a greater need for officers who are thoroughly familiar with the language, customs, mores, geography, and social and cultural environment of other nations of the world. Through mutual understanding, exchange of ideas, folklore and philosophies of life a better understanding of nations and peoples can be achieved.

For a number of years now the military establishment has recognized the need for a program of this type. It has been known by several names, but the purpose has not changed.

The Foreign Area Specialist Training Program, as it is presently called, is the current recognition of the Army's increasing requirements for officers with the desired knowledge of foreign areas and peoples.

Normally, foreign area training is conducted at the postgraduate level, with acquisition of linguistic fluency in the language of the area studied as an early objective. It is emphasized that this program is designed to produce highly qualified area specialists rather than superlinguists.

Subsequent studies stress the cultural environment and psychological characteristics of the people concerned. Area courses, including geography, historical and cultural background, regional and international relations, and the military, economic, political and social institutions are all considered pertinent.

Complete foreign area training may extend to four years' duration. This training is accomplished at the Army Language School and in civilian universities such as Yale, Princeton, Columbia, Pennsylvania and Stanford; and at oversea schools in the areas already actually studied. Programs are being conducted in areas where the Russian, Chinese, Japanese, Greek, Turkish, Arabic, Persian and Hindustani (India and Pakistan) languages predominate.

Assignments to the Department of the Army General Staff, to the Army Attaché System, or to military advisory groups or military missions are typical ones for graduates of the program. Once an officer completes his initial assignment in this field, he reverts to his basic branch for troop duty or some other appropriate branch assignment. Participants in the Foreign Area Specialist Training Program are subject to additional subsequent tours in their area of study consistent with the needs of the service and ability of the individual.

Members of this program are afforded equal opportunity to attend the senior service schools for which they are qualified and to remain abreast of their contemporaries in every respect.

A review of the roster of foreign area graduates reveals the names of some of our most outstanding military leaders. Prominent among these names are those of General Maxwell D. Taylor, Lieutenant General Willard G. Wyman and Major General Thomas S. Timberman.

Mandatory prerequisites to selection for participation in the Foreign Area Specialist Training Program are outlined in Special Regulations 350-380-1, 15 September 1954. (The application period for officers entering the Program in FY 57 is 1 November 55 to 1 February 56.) These prerequisites have been set high. It is imperative that only highly qualified officers with a good knowledge of the overall operation of the military, cultural, political and economic aspects of the American way of life be selected for training in this program.

This program is indeed a challenge to the vigorous, young officer who is not afraid of hard work or complex problems and situations.

Roundup of Armored Division Associations

Now that the Fall of the year is upon us and most Armored Division Associations have held their 1955 conventions it is appropriate that we publish pertinent information concerning new officers, next year convention sites, dates, etc. To obtain this information we turned to Lt. Col. F. P. Magers, Chief, Organizations Branch, Public Information Division, Department of the Army, Washington 25, D. C. This Branch keeps abreast of all types of organizations and is anxious to make contact with any new organization which might involve the Army. All interested organizations may contact the Branch at the above address.

Division	*Address*	*Secretary*	*'56 Convention Site*	*'56 Dates*
1st	1529 18th Street, N.W. Washington 6, D. C.	Leo B. Connor	Morrison Hotel Chicago, Illinois	24-25 August
2d	P. O. Box 172 Alexandria, Va.	R. F. Perry	Unknown	Unknown
3rd	80 Federal Street Boston, Mass.	Paul W. Corrigan	Kentucky Hotel Louisville, Ky.	19-21 July
4th	P. O. Box 42 Kearney, N. J.	A. J. Passanante	Hotel Statler New York City	28-30 June
5th	8549 Lowell Street St. Louis 15, Mo.	Claire Watrous	Brown Hotel Louisville, Ky.	9-11 August
6th	P. O. Box 492 Louisville 1, Ky.	E. F. Reed	Mayflower Hotel Washington, D. C.	30 Aug.-1 Sept.
7th	335 Johnson Avenue Teaneck, New Jersey	John Walker	Hotel Carter Cleveland, Ohio	17-19 August
8th	134 N. LaSalle St. Suite 1300 Chicago 2, Illinois	H. B. Rothenberg (Executive Director)	Chicago	6-8 July
10th	172 Larch Road Cambridge 38, Mass.	J. E. Grace	Congress Hotel Chicago	Unknown
11th	118 Thorne Street Jersey City 7, N. J.	K. W. Hanlon	Pittsburgh Pennsylvania	16-18 August
12th	2557 Main St. Lawrenceville, N. J.	L. W. Bensel	Wm. Penn Hotel Pittsburgh, Pa.	2-4 August
16th	5627 Washington Ave. Philadelphia 43, Pa.	Paul Cooney	Hotel Gibson Cincinnati, Ohio	9-12 August

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THE BOOK SECTION

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Atomic Weapons and Armies

Should war come upon us tomorrow, the military would be forced to utilize the weapons at

---

ATOMIC WEAPONS AND ARMIES. By Lt. Col. F. O. Miksche. 222 pp. Frederick A. Praeger, Inc., New York City. $5.00.

Reviewed by

COLONEL GEORGE C. REINHARDT

THE military's age-old problem of matching new weapons with commensurate changes in tactics and organization could scarcely be more acute than now, a decade after warfare became nuclear. That time-span seems brief in the light of the century required to adapt to the crossbow, the 30 years to comprehend the machine gun's potential,[1] the more than 30 to correctly employ the tank.[2] Today's hydrogen bomb menace leaves little hope, however, that the world can again learn from its mistakes and survive, as it did with earlier innovations in warfare's plodding path. Stern doubts have recently been expressed that military campaigns, in the professional sense at least, are possible. Strategy itself has been negated, according to some.

Those pessimistic views are not without precedent. The celebrated Baron Jomini wrote, in 1820, that rapidly increasing killing power of weapons would shortly make warfare impossible. Mankind nevertheless went on fighting more and more deadly conflicts. Each new weapon of offense was, sooner or later (representing one or more defeated nations' failure to change their military establishments quickly enough), blunted by defensive means.

Yet developments in H-bombs, U-bombs and their delivery agencies during the past ten years too clearly show the degree to which military tactics and organization have failed to keep pace with technological "progress." For its part, science has been equally laggard in devising any effective defensive means. Although conventionally organized armies, navies and air forces currently possess such near miracles as atomic cannon, atomic-powered submarines, supersonic airplanes, the ways by which tactics and organization will alter to employ (or cope with) nuclear age weapons already pouring into stockpiles, remain unsolved. An inescapable corollary, determining a balanced military establishment for the atomic era, arouses only a cacophony of violent disagreement.

The situation, likened a few years ago, to "two scorpions in a bottle" now resembles handing a loaded automatic shotgun to a maniac loose in a hotel lobby. The scorpion simile was apt enough for two nations (or coalitions) facing each other with A-bombs. The probability that relatively soon many nations, rather than only two, will possess even mightier tools of destruction, without knowledge of defenses to blunt them, favors the more manic comparable.

Groping at this vague horizon; its storm clouds of "total war," its heartening rainbow of the "Geneva spirit;" dwarfs our interest in skillful reviews of strategy and tactics, hypothetical forecasts of another world conflict spun on the web of the two we have experienced. Wholly new vistas are demanded.

Yet vistas provide neither shelter from hurricanes nor ready discrimination between rainbow and will-o'-the-wisp. Most of us had best prepare storm cellars while the chosen few explore.

Colonel Miksche has devoted his attentions to the former task in "Atomic Weapons and Armies," the first comprehensive work on the subject to originate in Europe, that portion of the world most immediately concerned.

The Colonel's approach is worthy of his ancient profession. Soldiers have ever been oppressed with the burden of "fighting the war with the weapons at hand." Whether statesmen fail to avert war, or scientists lag in weapons development can be no concern of the military man on . . . and after . . . D-day. The life or death

---

[1] 1885 (Hudson Maxim's) to 1915.

[2] 1916-1939.

THE AUTHOR

Lieutenant Colonel F. O. Miksche, a Czechoslovak officer, fought in the Spanish Civil War. Later he fought in his own country. He was next a Czech volunteer in England during the early days of World War II. He was attached to the French Free Forces and later acted as Liaison Officer at Eisenhower's staff at Versailles and Frankfurt. He is now professor of tactics at the Staff College of the Portuguese Army. Author of many books on Military subjects, the principal titles are *Attack, Blitzkrieg, Paratroops, Secret Forces* and *Unconditional Surrender.*

THE REVIEWER

Colonel George C. Reinhardt, Retired, graduated from MIT in 1924 and was commissioned in the Corps of Engineers. During World War II he served in Iceland as CO of the 5th Engineer Regiment, later as Base Engineer of the Iceland Base Command. Next he commanded the 1128th Engineer Combat Group in Europe. After the War he was instructor in Atomic Weapons at C&GSC. He is author of *American Strategy in the Atomic Age* and co-author of *Atomic Weapons in Land Combat*. Retiring in 1954, he is with the RAND Corporation, California.

hand. Considering the possible use of tactical atomic weapons on offense, have we prepared

question for him . . . and quite possibly for his country . . . is the skill with which he employs the weapons available at the time and place.

Every thoughtful work which attempts to bridge the enormous gulf between model 1945 armies and those which may have to fight on atomic battlefields should be sincerely welcomed and widely studied. They have been all too few.

Not unnaturally the earliest papers adopted the "it might have been" school, optimistically describing how Anzio's winter deadlock might have been avoided, St. Lo's breakthrough easily accomplished . . . had *Our* side possessed an atomic weapon. Lest that thumbnail review appear too harsh after the passage of years, let us recall that the United States then enjoyed an atomic monopoly. The "one battle, one bomb" complex (reminiscent of Texas Rangers), which does violence to military doctrine's Principle of Concentration, is explained by the reminder that at that time SAC jealously guarded a vested interest in all the bombs contained in our monopoly.

Even so, greater realism soon followed. Studies chose their theoretical targets among our own forces in those identical battles, forces packing far more men into a square mile than the Germans. The crowded beachhead at Anzio, the troop-glutted forest roads looking down upon St. Lo, might indeed have required only one bomb (even that date's "nominal" 20 KT) to prove decisive. This second chapter climaxed with the unhappy thought that our mightiest effort of the war, OVERLORD itself, could have been smashed by, say two or three, atomic bombs. Perhaps amphibious operations were impossible henceforth!

A rude shock interrupted this brave but primitive prying into so strange a future. President Truman announced that the Soviets had exploded their own bomb! The infinitely more difficult question of *Two-sided* atomic warfare was upon us before we had squarely faced, much less solved, the simpler mysteries of using our own nuclear weapons against a conventionally armed foe!

Escapism sought solace in the thought that, for some years at least, the Soviets would have only a *few* bombs. Judging a potential foe in our own mirror we assumed *their* strategic air force would pre-empt most, if not all, of that few. This idea was advanced (approaching *ad absurdum*) to sustain our fetish that *our* Armies would continue as users of, not targets for, atomic weapons. Bases of all kinds were still designed under that fixation.

Even so, disturbing progress nudged us rudely. Words like atomic cannon, Honest John, Corporal and Matador ceased to be secret. Prototypes of the weapons they represented were undergoing field tests. Operational status, in quantities, was around the corner. Atomic weapons, maybe hydrogen ones, were here to stay . . . were plentiful, beyond all previous notions of "atomic plenty". . . and *we* no longer owned them all.

Feature Reviews
Exclusive with
ARMOR

Two huge pills had to be swallowed by military planners. President Eisenhower's December 1953 report announced: "atomic bombs 25 times more powerful than that used at Hiroshima" (a 500 KT by simple arithmetic). This was followed by news of the megaton H-bomb, a behemoth which dwarfed Hiroshima's "model-T" nearly as much, mathematically, as the latter overshadowed World War II's biggest H. E. block-buster.

On the heels of that revelation came the realization that proverbial "biggest battalion" concepts had lost their meaning. If "x" superbombs could annihilate a field army how much profits it us to march to war with 100 x as long as the enemy army has more than "x"? One might as well imagine a duel with automatic pistols where the principals argued over how many extra clips of ammunition to carry. Could there *be* any tactics for the mutual suicide thus envisioned? Would not the inevitable extrapolation H-bomb urban attacks signal national annihilation and make a mockery of strategy?

All-out war, with weapons unlimited, can demonstrably be established as a suicide pact between the opponents . . . unless one achieves an unlikely first punch knockout before the other punches at all. We can rule that exception out as national assassination, not war. Thus what value atomic attacks?

As usual, such swift processes of ratiocination missed the basic problem. Recent history contains two long wars fought in the atomic age (Korea and Indochina), one of which did not suspend hostilities (who knows whether either is "ended"?) until after the dawn of the hydrogen epoch. True enough, nuclear weapons were not employed in either conflict but both sides possessed the capability. Does not sound doctrine insist upon evaluation according to capabilities, not estimated intentions?

But, you object, had nuclear weapons been employed in those limited wars would we not have had, forthwith, the all-out armageddon just outlined? Was that not the reason neither side utilized its atomic capability?

There are valid reasons for rejecting that theory. The word "limited" is the key. Limited wars are not effectively kept limited by area restrictions or unenforceable agreements to outlaw certain weapons. Only strict adherence to limited *objectives* makes for limited wars that *stay* limited.

Reconstruct the Korean situation. A Communism bent upon immediate world conquest would scarcely have exposed its hand in the relatively insignificant operation of North Ko-

to properly defend ourselves? This possibility plus the decision by proper authority to retal-

rean armies crossing the 38th parallel. If the Kremlin began the conflict with the limited objective of overrunning South Korea there are two sound reasons for believing that was the limit of its contemporary capability as well.

First, Communism's basic tenets forbid overt action until the prospect for quick and easy victory seems assured, adding an injunction against being "provoked" into unplanned actions by capitalist-imperialism's moves. Second, military doctrine avers that whenever your foe abstains from an act which you know would hurt you, it may be safely assumed that he has seen the opportunity and his abstention indicates lack of capability.

Therefore the tactical use of atomic weapons by the United States on Korean battlefiields would have produced no more violent Red reaction than employing A-bombs in the same restricted area, if that. Reaction of the American people and the NATO nations is intentionally omitted as psychological. Let us stick to tactics, however real and vital the psychological impact which must be met, in the main, by governmental departments other than Defense.

Had we been better prepared than our foes to employ atomic weapons in their tactical role in Korea's limited war, we might have brought that struggle to a swifter, satisfactory conclusion. Let me quickly add we would *not* have "licked communist China" in addition. That would have been a bit too unlimited an objective for a limited war. As it was we fought Chinese armies (with conventional weapons only) without fighting China. Our point is expanding the weapons employment, not the war.

Consider the converse. In another limited war the *enemy* may initiate tactical use of atomic weapons. Will we loose SAC upon Moscow . . . and inaugurate total world war in consequence? If, perhaps, not, . . . then we have a vital case for atomic weapons on and near the battlefield (tactical if you like the term better) with the only alternative craven submission to aggression.

Colonel Miksche examines that case ably, researching knotty problem areas which lie between armies of the past, meaning 1945, and those of the atomic future. Deficiencies in his presentation are largely due to incomplete knowledge of recent American progress in adapting tactics and organization to atomic realities. Nonetheless, Miksche's text, pounded home with missionary zeal—"an army which bases its doctrine on manpower plus machines instead of machines plus manpower"—is the sounder foundation, and does no violence to U.S. fundamental policies. If some of his sharper thrusts are targeted at deficiencies already eliminated by the Department of the Army one might argue that others of his strictures deserve a thoughtful second glance.

On a broad canvas he paints the

U. S. Army

Should an enemy initially employ atomic weapons, what would be our reaction?

iate with atomic weapons should serve to stimulate us into revising our tactics accordingly.

army of the future as comprised of five groupments: "Atomic Commands" containing Artillery, Guided Missile and Air Force Divisions; "Normal Infantry Divisions" emphasizing independent and guerrilla type action; "Mechanized Forces" which stress mobility and hitting power; "Rear Area Commands" operating on a geographical basis; and "Paratroops, especially for non-European theatres of war."

Colonel Miksche intersperses his theme with specific jabs at detailed items antithetical to his text. The "neglected problem of refugee control"; "the American division has a large head, too long a tail, a body not in correct proportion"; "once the athlete of the battlefield (Armor) has put on fat instead of developing muscle"; a "happy union between infantry and engineers will produce a composite type of troops"; "does every lieutenant really need a jeep?"

Hints reminiscent of the Anglo-French staffs' 1940 defense fixation, (not to be confused with an "active, mobile defensive") that helped pave the way for Nazi blitz victories, reflect a normal discouragement in approaching two-sided atomic campaigns. "How can an attacker cross a river if his immediate rear lies under heavy atomic fire?" The "complications of moving cumbersome conventional forces still indispensable for attack" against atomic defense.

Fuller examination of the situation shows the defender equally nonplussed. How to hold a river (or any other) "line" which has been outlined by hostile light forces and then deluged with atomic missiles? Nor will the strongest defense "line" so hammered require concentrated masses to penetrate it. Tossing Colonel Miksche's own teachings back at him, "cumbersome" forces have no place on atomic battlefields. History gives them scant praise in any age.

Probably the greatest flaw in Miksche's work is his choice of Western Europe for his "illustrative problem," an atomic war-gaming of the 1940 blitz invasion. Sparing, cautious employment of atomic weapons by both sides, while almost ignoring exploitation potentials results in an early (six week) arrival at stagnation on the ground from mutual weakness. His war game then shifts to devastating atomic air attacks on the population centers of both sides leaving the reader to wonder why the fruitless ground campaign was fought at all.

The book's avowed intention to "analyse the future role of armies without considering strategical air warfare" (defined by the author as air strikes more than 100 miles from the ground battle) thus aborts in its inability, by no means unique with Miksche, to separate tactical from strategic atomic warfare *when the scene is Western Europe.*

A Gift for Everyone

1955 CHRISTMAS GREETINGS 1955

Christmas Seals fight tuberculosis

His tactical theory hints that atomic campaigns will degenerate into static situations reminiscent of World War I's trench warfare and suggests a series of thin defensive belts to reduce atomic weapons' effects. Strategically he is struck by doubts, prevalent in other minds: "atomic weapons may almost prohibit maneuver"; "the issue will be decided principally by air power." The ground front is regarded as "merely a necessary barrier protecting the (air) bases and war industries" from enemy occupation.

"Atomic Weapons and Armies" is most valuable in its blunt acceptance that armies must change since weapons have already done so; for its analysis of many features, from military government functions, through logistics and mobility, to training and combat capacity. Its weakness, exposed by internal contradictions, stems from attempting to hypothecate a limited war with unlimited objectives. Whether the stagnation on the ground depicted by Miksche occurred or not, the cataclysmic blows at each other's population-industrial heart are inevitable concomitants of the life or death stake at issue. Easier to believe would be Churchill's "broken back war" fought by fragmentary ground forces *after* a nuclear exchange on national heartlands proved inconclusive.

Scarcely within the scope of the volume is yet another remote possibility: conventional war begins as both opponents withhold *all* nuclear weapons. (Neutralization, not to be confused with "outlawing H-bombs.") Frowned upon by SHAPE chieftains Gruenther and Montgomery as too favorable to the Soviets, that eventuality deserves Pentagon reflection. Do not most of the changes recommended for armies appear advantageous even though no atomic mushrooms blossom on the battlefields? Would not such a campaign require the most astute top level leadership to avoid the *Götterdämmerung* invited by soldierly proclivities to "fight it out on this line if it takes all summer"?

Summed up, we have controversial material, lessons to be learned, ideas to accept or refute. Miksche has scratched deep enough to hit pay dirt.

Railroading in Eighteen Countries

The author, formerly Director General of the U .S. Military Railroad Service, European Theater, tells the whole story of the military use of railroads in World War II and in Korea.

Maj. Gen. Carl R. Gray, Jr., Rtd.
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The Blundering That Led to War

The author traces the road that led to war and the downfall of Germany, showing it as a series of blunders begun with the dismissal of Bismarck and ending in the outbreak of the war nobody wanted.

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BISMARCK

One of the most famous political cartoons of recent years shows Wilhelm I letting the pilot (Bismarck) go. Bismarck was cold, ruthless, ultra-conservative; he created a unified Germany, however, and made it one of the strongest nations in Europe.

A. J. P. Taylor **$4.75**

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